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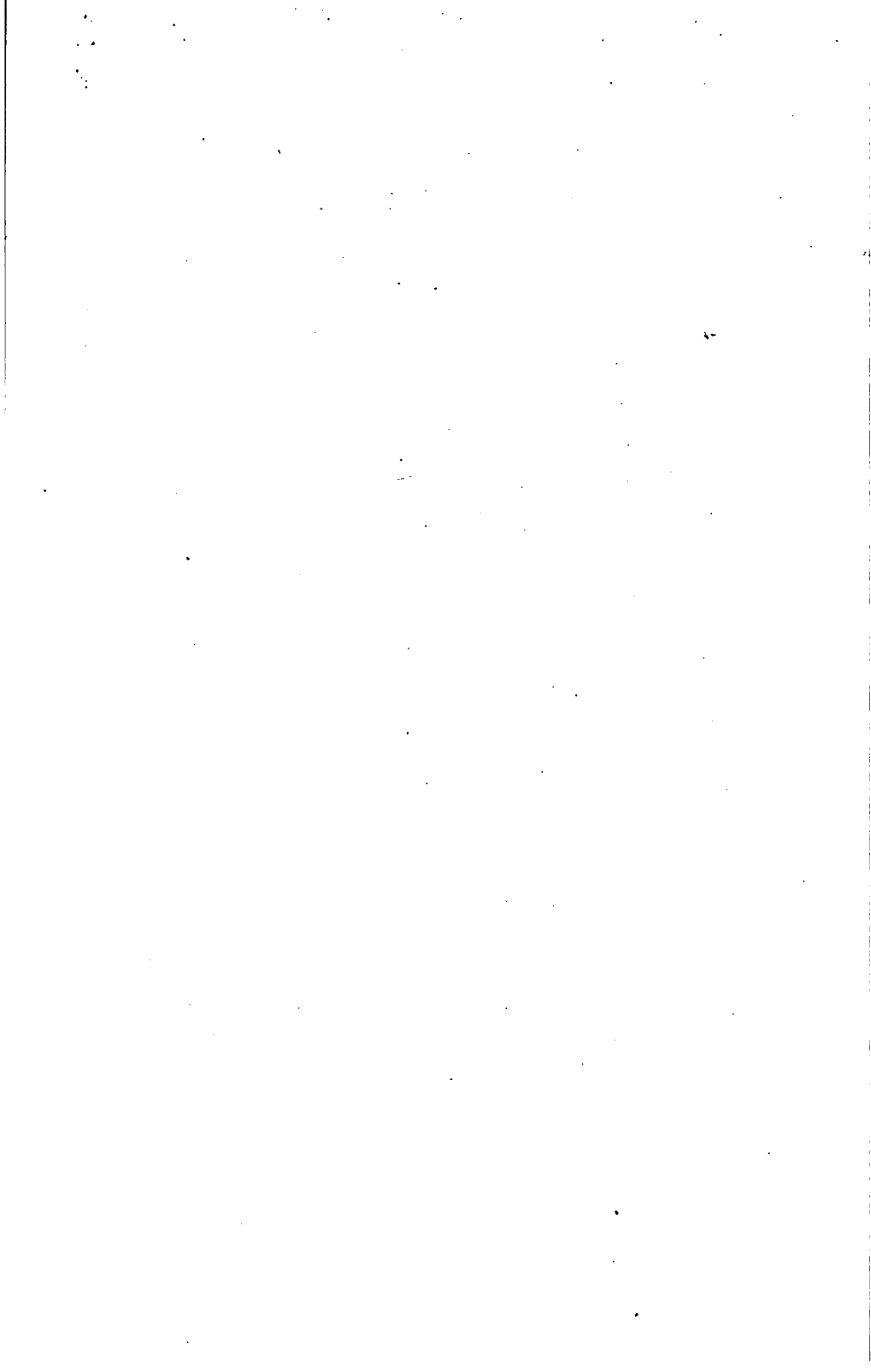
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NORMAN'S
UNIVERSAL CAMBIST

WITH

AN EXPOSITION OF THE WORLD'S PRESENT MECHANISM
OF THE INTERCHANGES OF THINGS.



NORMAN'S UNIVERSAL CAMBIST

A READY RECKONER

OF THE

WORLD'S FOREIGN

AND

COLONIAL EXCHANGES

An Eminent Economist's Opinion

UPON

NORMAN'S UNIVERSAL CAMBIST.

"I regard NORMAN'S CAMBIST as the best (perhaps the very best) exposition of the nature, origin and the use of the money by which the world effects its exchange of commodities which has ever been, or is likely to be, written and published. It ought to have place in every well-constituted library."

(PROFESSOR THE HONORABLE) DAVID A. WELLS,
NORWICH, CONN., U.S.A.

January, 1898.



LONDON
EFFINGHAM WILSON
ROYAL EXCHANGE

1897

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GENERAL

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Dedication.

THIS SECOND EDITION,
WITH ADDITIONAL AIDS SINCE 1893
TO THE
COMPREHENSION OF, AND PRACTICE WITH, MONEY, ETC., OF
"A READY RECKONER OF THE WORLD'S EXCHANGES
OF INTERMEDIARIES,"
THE AUTHOR DEDICATES, AS HE DID HIS WORK OF 1892,
"THE WORLD'S EXCHANGES OF STANDARD METALS,"
WITH ALL RESPECT,
TO THE WORLD'S FIRST MAN OF SCIENCE
WHO IN THE FUTURE PRODUCES A SCIENCE PRIMER OF MONEY
SUCH AS WILL COMPEL THE WORLD TO ACCEPT
AND TEACH IT AS TRUTH.

EXTRACT FROM THE ANNUAL REGISTER OF 1797 PUBLISHED IN LONDON, BEARING ON THE INCOMPARABLE DIFFERENCE BETWEEN STANDARD MONEY AND TOKENS OF IT.

Gold and silver and other precious metals have a twofold value, a value intrinsic and a value conventional. They are valuable on account of their own qualities, and they are valuable as the signs and pledges of wealth. This distinction men learnt to make in the progress of commerce. And there was never an abstraction more curious in itself, or in common affairs more important in its consequences. The conventional or arbitrary value of gold and silver, the signs and pledges of wealth, has been taken off, has been abstracted from the solid metals and transferred to paper, a very flimsy and unsubstantial body, and which may be considered as holding a middle place between matter and spirit. It is not, however, the paper that is in fact the substitute for money, but something still more exile—the promise the act of mind stamped upon it—so that money has come to be, not so much a substantial or material as a metaphysical thing; and so easily multiplied, that the number of paper dollars in America, assignats in France, and bank notes in Great Britain, have almost exceeded calculation. . . . But in this country, as in others, different causes occurred to remind the world that there was a wide difference between money that possessed an intrinsic value and money of the abstractest kind, which is merely conventional. A run was made on the Bank of England which threatened its ruin. Government intervened for its preservation, *and the minds of men began to be turned back from metaphysics to matter; from the sign to the thing signified.*

1897.—The first centenary of the Bank of England's suspension of cash payments through inability to exchange the standard substance promised on the face of the note for that instrument presented to it.

AN ECONOMIST'S ANSWER TO THE QUESTION, HOW DOES MONEY DO ITS WORK?

"The work which money has to perform is to exchange commodities. . . . Now arises the fundamental question which it behoves every man to grasp—yet how many can answer it? No man understands what money is if he is unable to see the answer. How does money perform its work? The tool-knife works by means of its sharp edge—it cuts; every one sees this instantly, but how many can tell how it is that money buys? It works by means of its worth, its value as a piece of metal. On this cardinal fact all understanding of what money is hangs. The whole battle with the bimetallists turns upon it. To buy is to exchange one thing for another on the basis of the value of one thing being equal to that of the other. But what is the quantity of value which each possesses? That is the critical point. In common life the value of a thing is held to be its price, what it will fetch in money; but the value of the money fetched is unexplained. We obtain that explanation by saying that the value of the money is calculated in the same way as that of the article bought. The amount of the money given is determined by the cost of producing the metal, precisely as the price of a coat or a loaf of bread is determined by what they cost to produce. The quantities of the metal and the commodity exchanged are regulated the same way. As Aristotle pointed out, gold, money, is chosen simply as one of many commodities. The cost of the production of gold or silver is the amount of goods of all kinds which the miner must have to induce him to get the metal out of the mine. As all commodities are exchanged for the same article, the precious metal, their several values are expressed in, are measured by the *value* of the metal of which the money is composed. Each has a price in money; their values can be compared with each other."

Extract from an address by the late Oxford Professor of Political Economy, Bonamy Price, LL.D., Edin., on Economy and Trade in 1882.

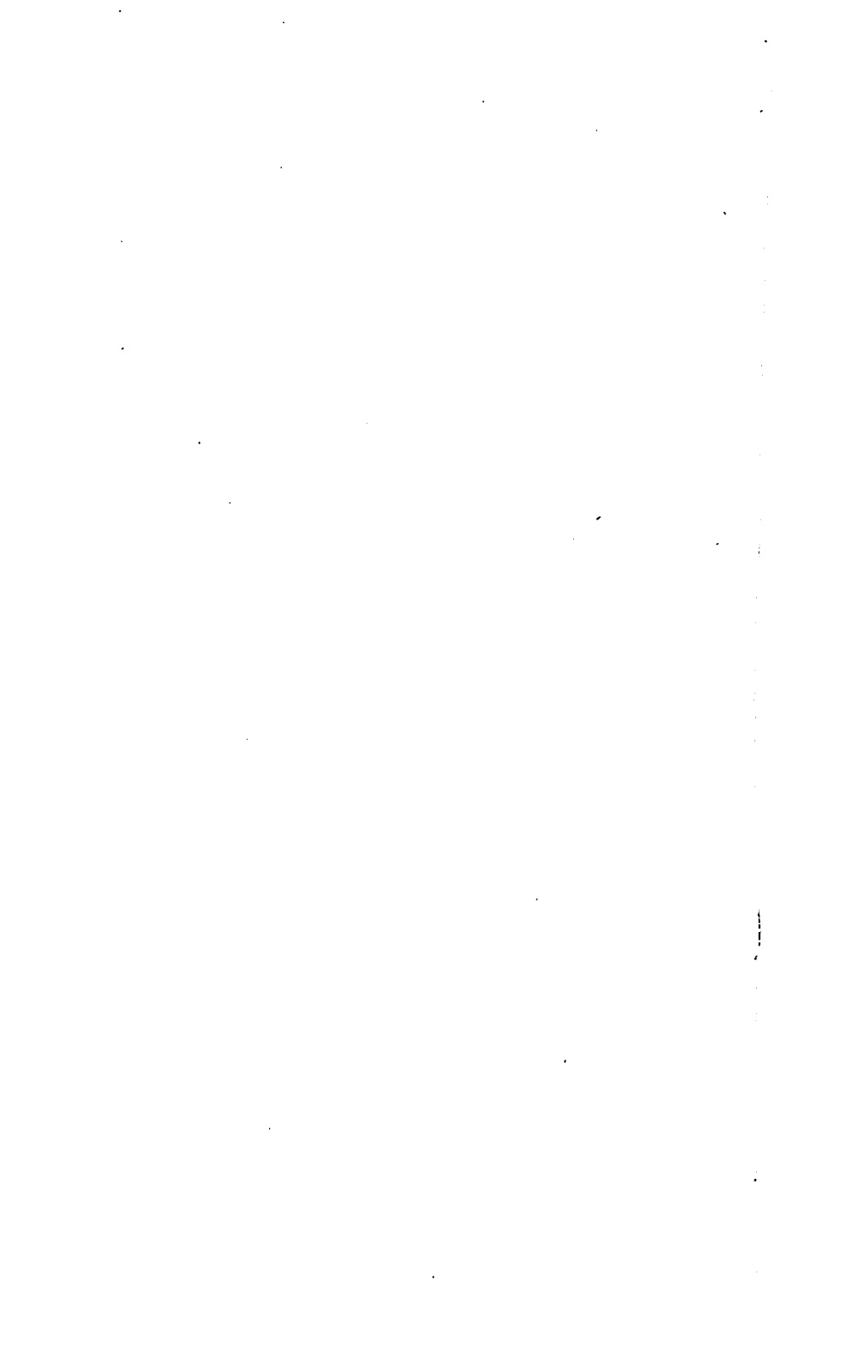


PREFACE TO THE SECOND EDITION.

IN the pages of the "Banker's Magazine" of February, 1889, the writer endeavoured to awaken attention to the subject of money in the following words :—

"The world has no science of money. Not a day should be lost in preparing a science primer of money. I would that I could assist to stimulate the scientific men whose vision is not distorted by credit instruments, who possess an aptitude for the subject, and could easily acquire "a masterly skill in bullion and coin," in my own country, in the United States of America, in Germany, and in France, to accomplish this. Within ten years of the subject being taught with geography in the schools of the world and the issue of this primer, the utmost astonishment would be expressed at the present all but universal darkness which is over the subject, and the gross errors which flourish therein."

In 1894 the writer formulated a "Science of Money," "What it is, its conditions and laws. What it is not"; for which he received the thanks of Professor Goldwin Smith, who noted it as "a clear and useful little tract," and added these words, "If people had only taken the pains to get clear ideas upon a few very simple points, an ocean of controversy upon currency and economics generally might have been spared." This tract has appeared in various publications, and can be found on page 16 of this preface. In October, 1895, the teaching of J. S. Mill and Bagehot again came under careful consideration. In a letter to the "Banker's Magazine," published in the November 1895 issue of that journal under the title "The Currency Problem: is it false Political



contradiction to the experience of experts in the foreign and colonial exchanges of intermediaries, international and inter-colonial traders and financiers. No one can deny that as the silver price of gold has risen, the sale-price of silver securities in gold standard countries has declined in proportion to the fall in the gold price of silver, simply because the same weight of silver commands a less weight of gold. And this law operates on wheat and every other thing which may be exchanged between a country with an effective silver currency and a country with an effective gold currency. Unless prices of the things in the silver standard country rose in proportion to the rise in the silver price of gold, competition between sellers of the things in a gold standard country necessitates a fall of prices equivalent, or nearly so, to the rise in the silver price of gold, or in the other aspect to the fall in the gold price of silver. The world at the present time has seven monetary and currency intermediaries, the workings of which are fully explained in this book. Five of them are of a vastly diverse nature, and entail very heavy percentage fluctuations, reaching sometimes to 400 per cent. Whereas, if the whole world had only one scientific automatic measure of value, the fluctuation of the intermediary would be confined within about 1 per cent. between the most distant ports of the world. The writer's "Guide to the Exchanges of Gold and Silver Coins for the use of Sailors, &c.," brought out in 1894 and added to 1896, is in substance in this edition, and contains the mode of working the world's exchanges of intermediaries advocated by the writer. This system is such as exists between countries using the same weight of pure metal as their chief money of account; as between the British Isles and Australasia, and between France and Belgium. A box containing cardboard facsimiles of the current coins of the British Isles, made in Bavaria, is a toy used in the kindergarten system of instruction of children. This system is capable of valuable extension through the higher standards of education in all schools, and should be the means not only of instructing children to think and work out problems in prices and the exchanges

of intermediaries, but also to interest them in the functions and power of money as they may be able to receive it. This study and practice would add vastly to the interest of geography. Miss E. C. Sharland, in her valuable work, "Coin of the Realm, what is it?" which originally appeared in the children's column of the *Co-operative News* in 1888, imparted instruction commencing with the mint-issue weight of pure metal in the world's chief gold and silver standard monies of account. She concentrated the attention of children upon British prices, threw off monetary signs, and enabled them to present their shopping expenses in troy grains of pure gold. She led them through the barter of Indian wheat for Manchester piece goods; through the exchange of the same goods by means of the intermediaries, the British Indian rupee and the British sovereign. She asked thirteen questions of children and young people ranging from nine to twenty years of age, and received answers from eight; the three prize-winners being of the ages of 12, 12 $\frac{3}{4}$, and 13 $\frac{1}{2}$ years, two of whom were girls. The answers given by these children surprised the keeper of the British standards, who recognized the success in Miss Sharland's able chapters upon money, and added, "In these chapters the actual relation between the standard of monetary measure in different countries is based on the simple unit, a grain of standard substance; and so all the technical overloading always met with in the literature of this subject is quite swept away. The child has only a simple factor before him, and by successive gentle steps he has been taught to apply that factor to unravelling so many knotty problems in exchange and value." Specimen lessons to carry children from the point attained in the kindergarten system to Miss Sharland's instruction and beyond appear requisite, and when these are provided there is every reason why the subject should be mastered, as it surely can be, by every one before leaving school. A most instructive and interesting lecture could be made of "Money, its Place and Functions in the World, and how to use it." The chief coins and figures on the subject could be impressed on the spectator

by lime-light illustrations, and the mode of getting it from the earth and the use of it in mints, banks, &c., would present beautiful pictures, which could not fail to interest and instruct all classes, from the youngest to the oldest.

The following extracts from writers, the first of whom died in 1641 and the second wrote in 1753, are commended to each reader for thought and practice. In Thomas Mun's "England's Treasure by Foreign Trade" there is the following advice to his son. III. He ought to know the measures, weights, and monies of all foreign countries, especially where we have trade, and the monies not only by their several denominations, but also *by their intrinsique values in weight and fineness compared with the standard of the kingdome, without which he cannot well direct his affairs.*

V. He ought to understand and be a diligent observer of the rates of Exchanges by Bills, from one State to another, whereby he may the better direct his affairs, and remit over and receive home his monies to the most advantage possible. This sage merchant's advice to his son is contained under twelve clauses, and he sums up: "Thus have I briefly shewed thee a pattern for thy diligence; the merchant in his qualities; which in truth are such and so many that I find no other profession that leadeth into more worldly knowledge."

William Horsley's introduction to the "Universal Merchant 1753" contains the following:—"The acquaintance with the exchanges, however it may seem to some the business of merchants only in commercial free states, falls properly under the cognizance of gentlemen, particularly those who have or intend having any share in the Legislature, and still more materially such who are in the immediate direction of public affairs, as without a *masterly skill in bullion and coin*, it is impossible to understand exchanges, whence singular inconveniences may happen in delicate emergencies. There is not any article of trade in which the gentleman should not be a tolerable theorist; but in *bullion and coins*, whereby other articles are usually adjusted, he should be practically skilful."

Under the conviction that the mechanism of the inter-

changes of things between man and man and community and community is a vastly important branch of sociology, and hearing that our great synthetic philosopher had treated of the evolution of commerce, the writer obtained a copy of Herbert Spencer's third volume of "Principles of Sociology." It is with intense interest and pleasure that the last 215 pages has been perused. The chapters on Acquisition and Production, Auxiliary Exchange, Free Labour and Contract are marvellous instances of the display of knowledge and deductions therefrom. Here are two quotations, page 395, "Among examples of evolution which societies furnish, perhaps none is more striking than this gradual advance from the giving and receiving of presents by savages to the daily balancing of a nation's myriads of business transactions by a few clerks in Lombard Street"; and on page 501, "Only in modern times have trustworthy currencies given precision to contracts; and even still in various places depreciated paper currencies interfere with this precision." Our philosopher could go no further than our economists have led him. The following statement has been hazarded to a good many different intelligent persons recently:—"Assuming that the population of the earth is 1,500,000,000 people, it may be seriously doubted whether one in a million understands the mechanism of the interchanges of things between individuals and communities." The statement has been acquiesced in, and not one has attempted to show the mechanism. One object of this work is to endeavour to throw more light upon the subject than the author has met with in any work on economics he has read. The late Dr. A. Soelbeer looked forward with the author to the time when, for all statistical purposes, prices would be stated in weights of pure metal, and he suggested the milligram. This appears to the writer too small. He thinks the decigram, which is equivalent to a little more $1\frac{1}{2}$ troy grains, more suitable, and has therefore given in this weight all the chief moneys of account of the world, all his tables being worked upon this weight. The author does not despair of one or two perhaps of the following being accomplished in his day. The possession of a well-

formulated science of money such as the world will be compelled to accept and teach as truth ; a book similar to that of the painstaking German author Noback, 1879, with regard to weight and fineness of coins in current use, combined with facsimiles in print of the world's current coins ; a constant display in London consisting of the current coins of the world in duplicate ; the nature and functions of money practically taught, terminating with the science of it in the schools of the world with, or as a branch of, geography. He attaches his own ideas about money.

THE SCIENCE OF MONEY.

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- I.—MONEY, WHAT IT IS. ITS CONDITIONS AND LAWS.
II.—MONEY, WHAT IT IS NOT.
III.—A SIMPLE AID TO THE ACQUIREMENT OF "A
MASTERLY SKILL IN BULLION AND COIN."
-

I.—MONEY, WHAT IT IS. ITS CONDITIONS AND LAWS.

Article I.—It of necessity possesses two functions. First, and that which is vastly the most important, it is a measure of value ; and, secondly, it is a means of payment.

Article II.—It is a commodity used as a measure of value of all services, other commodities and properties within a country and between countries possessing the same commodity as a measure of value. It is also a means of payment for the purpose of facilitating the interchanges of services, commodities, and properties between man and man and between community and community.

Article III.—It is a measure of value by means of the value-giving factors it contains. These value-giving factors are expressed in the term *cost of production*, the main ingredients in which are past and present labour.

Article IV.—As a measure of value, it must possess value. It is intended that it should do its work by its value. That the value-giving factors in the chosen intermediary

commodity should exchange with services, other commodities and properties in proportion to the value-giving factors contained in each.

Article V.—If these conditions are sound, it necessarily follows that the true and sole definition of money is the intermediary commodity or standard substance appropriated to currency purposes for facilitating interchanges of services, commodities and properties.

Article VI.—The intermediary commodities used as money or measures of value and means of payment by the civilized and semi-civilized peoples of the world are gold and silver, in the shape of bullion and coins, at the present time.

Article VII.—A scientific automatic monetary standard of value and means of payment is a conditional thing. The conditions are: (a) The substance forming the standard must be received by the State, which accepts it as a standard in unlimited quantities from any place or person in payment to the State, and at Mints should the State possess any. (b) The substance must be fitted for monetary purposes by the State or other constituted authority. (c) The substance must be made unlimited legal tender. (d) There should not be any charge for coinage or for adding alloy to the pure metal forming the standard coins, so that the value of the pure metal in the standard currency shall be the same as an equal weight of bullion. (e) Standard coins should be kept up to Mint issue weight at the cost of the whole community.

Article VIII.—Any laws beyond those necessary to secure the conditions mentioned under (a), (b), (c), (d), and (e) of Article VII., and to protect against fraud, should have for their object to preserve the standard substance against favour or fetter by the operation of monopolies, rings, and corners.

Article IX.—A scientific monetary standard cannot possibly be made out of two commodities, because an attempt at it must embrace a fixed ratio between the two substances. It is unthinkable that any fixed ratio would conform to the comparative average cost of the production of the two commodities. If one should be favoured the other would be fettered; if one should be fettered the other would be favoured.

And thereby monopoly prices would be secured for one class of producers, and a direct incentive would be given to the formation of rings and corners under the deliberate action of the State.

Article X.—There are other instruments to be used as intermediaries, such as metal tokens of, and paper promises to pay the standard substance, which may be safely, if prudently issued, used as substitutes for the standard substance in a country possessing an effective automatic metal monetary system. But the moment that the standard substance cannot be obtained of the weight indicated by the monetary sign upon the State notes payable on demand at the desire of the holder of the note, the system of currency ceases to be a monetary system, and has degenerated to a currency system of inconvertible paper.

Article XI.—Since experience shows that international interchanges of things accommodate themselves to any system of monetary or currency intermediary, a country's primary object should be to possess a metal measure of value, and means of payment of such a quality as is practicable, which shall present over lengthened periods the most stable measure of value for the sale of the internal interchanges of the country and the deferred obligations of the inhabitants. The secondary object is to possess the best substance with which to conduct their international interchanges. That substance which would meet the two objects of course is preferable.

Article XII.—The condition of interchanges between the people inhabiting the continents and islands of the world should be carried out upon the terms of barter. The terms of barter are, value-giving factors in this thing with or without the unearned increment for value-giving factors in that thing, with or without the unearned increment, to the benefit of each country and island in the world. It is readily seen that the terms of barter would so hamper the interchanges of things as to well nigh throw civilization back into barbarism. An intermediary with its two results, *price* and a *rate of exchange*, is a necessity. With one intermediary only for the whole world

the interchanges of things would be carried out upon the terms of barter. With more than one intermediary and a fluctuating ratio between them interchanges of things for things cannot be carried out on the terms of barter. The world's experience since 1873 has demonstrated this, and it may be truly said that the key to the derangement of prices and the threatened destruction of industries in some countries possessing the gold standard is found in the use of five vastly diverse intermediaries instead of one for the whole world.

II. MONEY, WHAT IT IS NOT.

Article XIII.—It is not a printed, written, or verbal promise or order to pay a given weight of the intermediary commodity. For such promises or orders do not possess the value-giving factors equivalent to the value-giving factors contained in the weight of metal, indicated upon the face of the promise or order to pay the commodity. The value-giving factors in a printed promise to pay £1000 may be '058,855 of 1 troy grain of pure gold, or one-eighth of a penny, whereas the weight of gold promised is 113,001'605 troy grains of pure gold.

Article XIV.—It is not any description of token, such as silver or bronze coins in countries possessing a gold standard, or gold or bronze coins used in countries possessing a silver standard. For these coins are not intended to possess the value-giving factors equivalent to the value-giving factors which are in the standard substance for which they pass as tokens.

Article XV.—It is not a counter. For the same reason that a counter need not possess value-giving factors in near relation to the value-giving factors in the services, commodities, and properties for which it is exchanged.

Article XVI.—"It is not something which is more or less than a commodity." Neither "is it anything which is paid by anyone," as the German word *geld* at the beginning of the fourteenth century A.D. is said to have meant.

"Many who think only superficially upon the subject of money doubt that it is intended that it should do its work by

its value, and that it ordinarily thus accomplishes its work. The doubter who, perhaps, affirms that in his opinion money is only a token might be asked: A token of what? If, with Anacharsis, he compares money to a counter, or, with Bishop Berkeley, defines money to be a counter, he might be told that neither tokens nor counters can do the work of money. For neither is a token for money nor a counter of the nature of money. If the cheapest counter imaginable (a piece of paper) can do the work of money, then abolish all mints and the necessary machinery, and effect interchanges by that instrumentality. Thereby this country would retain its value-giving factors, which it now parts with for gold and silver requisite for its currency purposes. But as things are, and apparently need to be, let us reflect that the £300,000,000 of gold and silver imported and exported between the countries of the world in one year necessitate the payment or receipt by each country of value-giving factors in some other things for the gold and silver imported and exported by each country."

"The writer would invite the bimetallists to produce a science of money under the terms and conditions which they may consider science demands. Perhaps in the course of time, when more light has to some extent overcome the gross darkness upon the subject, and should agitation for bimetallism continue, the best step which can next be taken would be to convene a meeting of representatives of all States throughout the world upon the subject of money. These representatives should be scientific, disinterested men, who are removed from the cares and snares of business, and whose aim should be to approach the subject upon scientific, rational, and common-sense principles, and not from the side of suggested expediency."

Two thousand copies of this tract were sent to rulers, statesmen, legislators, finance ministers, professional economists, &c. No adverse criticism upon it has reached the writer since its production in 1894.

Professor Goldwin Smith's words, which are quoted at the commencement of this preface, taken in connection with

others from the lips of Professor I. K. Ingram, indicate dissatisfaction with the present state of economics:—"I. That the study of the economic phenomena of society ought to be systematically combined with that of the other aspects of social existence. II. That the excessive tendency to abstraction and to unreal simplifications should be checked. III. That the prior deductive method should be changed for the historical. IV. That economic laws and the practical prescriptions founded on them should be conceived and expressed in a less absolute form. These are in my opinion the great reforms which are required, both in the conduct of economic research and the expositions of its conclusions. I am far from condemning the effort after accuracy of language and well-defined terms, but the endless fluctuations of economists in the use of words certainly indicate a very general failure to apprehend and keep steadily in view the corresponding realities. . . . The method of the new school is realistic and historical. It sets out, says Held, from observed facts and not definitions, which often serve to mark only foregone conclusions." An address to the British Association on Economics and Statistics, 1878.

1897.

PREFACE TO THE FIRST EDITION.

PERHAPS it may be considered that among four or five vastly important questions which might be asked respecting the condition of any community, the following concerning currency are not the least important.

How does it effect its interchanges of commodities, services, and properties between its members, and as a community with other communities of the earth? Does it cut notches in a stick as a record of something of value in kind parted with or received, to be returned in the same or some other kind of equivalent value? Does it possess a measure of value? Are its proclivities and practice in favour of the use of paper instead of the weight of metal indicated by the paper? Are the weight and quality of the substance used of primary importance to it? Does it possess a scientific, automatic, metal monetary system? Has it an effective metal monetary *cum* coinage charge system? Does its system consist of inconvertible paper? The perplexities and difficulties and the diverse views which have been so prominent during the last twenty years in connection with the world's two great measures of value and means of payment, gold and silver, have arisen from the darkness as to their mode of action which enshrouds the employment of these instruments for facilitating interchanges between man and man, and community and community. It would seem that until a science primer upon money which will satisfy the world is produced, the present state of ignorance and uncertainty must continue.

The writer has long held, and still holds, the opinion that the thorough comprehension springing from the practice of the foreign and colonial exchanges presents the soundest

foundation for the construction of this science. He therefore thinks it due to the students of the subject that he should immediately present to the world a development in working the exchanges which admits of the abolition of all tables of exchanges, and which also wonderfully simplifies the necessary instruction upon the exchanges.

There are many ways of working the foreign and colonial exchanges. Financiers, bankers, bullion coin and exchange dealers, merchants, traders, and dealers mostly arrive at results by the use of exchange tables. This is working by signs in a rule-of-thumb manner, with the almost certain result of losing sight altogether of the thing signified, which is always between countries possessing effective monetary systems, either a weight of pure gold for a weight of pure gold or pure silver; or a weight of pure silver for a weight of pure silver, or for a weight of pure gold.

The further development which it is attempted to exhaustively set out in this book consists of converting the monetary sign for a weight of gold in one country into the monetary sign for the same weight of gold in another country, and the same with silver; and the monetary sign for a weight of gold in one country into the monetary sign for a weight of silver of equivalent value to the weight of gold in another country, at the ratio of the day between the two metals, and *vice versa*; by means of the mint-issue weight of pure metal in each chief money of account of the world.

This manner of working the exchanges and adding to or deducting from the sum exchanged the deviation from the fixed and absolute pars of exchange in the shape of premium or discount, keeps the important matter of weight of gold and silver prominently before the mind, and should greatly aid in preparing it to receive the science of money as soon as it may be promulgated.

It will be seen that there are other and shorter modes of reaching fixed pars of exchange of large or small sums of money, but the working would be effected by the use of signs for weights, and not by the weights of pure metal.

The monetary systems of 161 countries are shown. The

274 fixed gold and 156 fixed silver pars of exchange are given. A constant is given under each head of thirty monetary systems, embracing the proposed new Austria-Hungarian and the possible Russian gold systems, by which the ratio of the day between the metals can be easily determined. With the ratio and the mint issue weights of the world's chief moneys of account, 870 different exchanges of gold for gold or for silver; silver for silver or for gold, forming any sum, can be easily and correctly reached.

Gold and silver constants are given, which, if they are divided by the price of silver of the day in gold monetary systems, and the price of gold of the day in silver monetary systems, being divided by the constant, give the absolute par with each chief money of account in all places.

Lengthened interest in the welfare of seamen has added a keen incentive to the production of this simple ready reckoner. These men and soldiers, besides travellers throughout the world, will find the book a guide to the closely approximate exchange value of current gold and silver standard coins, tokens, and printed or written promises to pay money of all systems everywhere.

Should this book prove a stepping-stone to the science of money, it would attain the highest distinction the writer could desire for it, and would be an ample reward for the labours of the author in the vastly important but, as yet, very inadequately explored field of money.

1893.

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NORMAN'S UNIVERSAL CAMBIST.

Part I.

CHAPTER I.

The book—The object of the book—Its construction—Definitions and examples—Money—Monetary Systems—Currency—Money tokens—Credit Instruments—Standard (a)—Standard (b)—Conditions : I. Of a scientific, automatic, metal monetary system ; II. Of an effective automatic metal-*cum*-coinage charge monetary system ; III. Of a currency system—Monopoly coins—Bimetallism, or local dual standards—Monometallism—Moneyweights—Weights by which gold and silver are sold—Money tables—The ratio between silver and gold—Premium and discount upon fixed and absolute pairs of exchange.

The Book.—This book is issued with the hope and expectation that it may be of great use in removing the present ignorance upon the subject of money.

Instruction as to what money is and how it does its work, and what tokens of money and written or printed promises to pay money are, and how they do their work, should form a very important part in every system of education, and especially such systems as are under the direction or control of governments.

It has been demonstrated that boys and girls ranging in ages from twelve to eighteen years can, when properly taught, thoroughly understand and work the foreign and colonial exchanges of gold, silver, and inconvertible paper.

The writer is confident, from his own experience, that any one with the least aptitude for figures, who can work decimal

multiplication and division, can master the foreign and colonial exchanges. "A masterly skill in bullion and coin," the writer believes to be the essential stepping-stone to the science of money; the foreign and colonial metallic exchanges present the best field for the acquirement of this skill.

Its Object.—The main object of this book is to set forth in the plainest manner possible, with examples—(1) the most simple and direct modes of arriving at the world's fixed and absolute pars of exchange; (2) the mode of determining the equivalent commercial exchanges limited by the cost of the transmission of metal; (3) coinage charges; and (4) interest for the use of money, when such a charge is included in the rate of exchange. Its further object is to furnish instruction upon the use of seven intermediaries constituting prices and the foreign and colonial exchanges among the trading communities of the world.

It is also to instruct all young people, both boys and girls, so that they may be able to work the world's foreign and colonial exchange with ease and accuracy. The book will prove a valuable guide to sailors, soldiers, and travellers, besides forming the constant desk companion of every financier, banker, international and intercolonial trader in the world.

Its Construction.—The method of the compilation of the book is to give—(1) definitions and examples; (2) to set forth exhaustively the fixed and absolute pars of exchange of the world's metal monetary systems under the name of the chief country possessing the system; (3) to present a dissertation in support of the contention that the world's gold and silver exchanges should be quoted and worked by premium and discount on one factor only, in the manner of working the exchanges between the British Isles and Australasia, France, and the countries of the Latin Union, India and Ceylon, the U.S.A., and Liberia.

The writer desires to avoid all controverted subjects in this book, his primary intention being to make it of use to practical people. A science primer of money is the crying want of the world. His idea of what this should be he has

set forth in the preface. But he presumes, for the purposes of this work, and to keep weights of pure gold and pure silver constantly before the minds of the readers, to insist upon the following—

DEFINITIONS AND EXAMPLES.

Money.—The term “money,” for the purposes of this book, is limited to the standard substance appropriated to currency purposes. Money therefore means, in a gold-standard country, the pure gold in the standard gold coins and the pure gold in the shape of bullion reserves for currency purposes, and in like manner for silver in a silver standard country.

Monetary System.—The term “monetary system” is limited to that system which consists of the possession of one or other of the standard substances, gold and silver, in each country in sufficient quantities for the conduct of international interchanges of all properties imported and exported, so that the tokens for money and credit instruments which are promises to pay money, do the work at an equivalent exchange value with the standard substance, and as though the whole currency consists of the standard substance only.

Currency.—The term “currency” includes money and all intermediaries which, under given conditions, do the work of money.

(a) **Money Tokens.**—These intermediaries, which do not come under the writer’s definition of money, are metal tokens for money, and all credit instruments which are either promises or orders to pay money. The conditions under which the tokens for money and promises and orders to pay money do their work are, that metal tokens for money are not unlimited legal tender; as in the British Isles, where no more than forty shillings in one payment nor twelve pence in one payment are legal tender, but where, at the same time, gold is legal tender to an unlimited extent.

(b) **Credit Instruments.**—The condition upon which credit instruments do their work on an equality with the standard

substance or money is, that the money promised can be obtained without question, delay, or expense at the will of the holder of the promise or order to pay the money, when the promise of money, or the order to pay money, becomes due.

A country possessing a currency system only might find it impossible to obtain the standard substance for any quantity of promises to pay it. Or it might be able to purchase the standard substance for a small or heavy premium expressed in these promises.

Standard (a).—The term "standard" is used in two senses in connection with money. In the first and most important sense, it is the substance appointed in a country as both a measure of value and a means of payment, such as gold in the British Isles and silver in India.

Standard (b).—In the second sense, it is applied to the composition of the standard metal. Pure gold and pure silver are not hard enough to stand the wear and tear of circulation, and are therefore mixed with baser metal to supply this deficiency. The quantity of alloy varies in the construction of standard metal for coins of gold and silver. It consists of a certain proportion of weight in 1000, as in British standard gold, 83·333 parts alloy in 1000 parts of standard gold.

I. Of a Scientific Automatic Metal Monetary System.—It must consist of one substance in each country. The substance must be received in unlimited quantities by the state, be fitted by the state for currency purposes, and be appointed unlimited legal tender. There should not be any coinage charge for manufacturing the standard coin, so that the exchange value of the coin and bullion should be equal. That for all promises to pay money, the standard substance of the weight indicated by the promise should be obtainable in exchange for the promise at the option of the payee, without question, delay, or expense.

II. Of an Effective Automatic Metal-cum-Coinage Charge Currency System.—To the extent of the coinage charge, there

is a departure from the conditions of a scientific metal monetary system. A coinage charge does not add to the international value of the metal forming the coin. It widens the margin of exchange to the detriment of the country doing business with the country wherein the charge is imposed. The charge acts unfairly on the people of the country imposing it. In India, where the poor either hoard silver or make it into bangles, the coinage charge falls as a tax upon them. And this charge is doubled should it be necessary to reconvert their bangles, &c., into rupees. Among the Western powers of the world, the approved principle is not to levy any coinage charge upon standard metal which is converted into coins. Under this system the standard coin is obtainable at the option of the holder of a promise to pay the standard substance at the due date, without question, delay, or expense.

III. Of a Currency System.—A country which cannot pay for its imports with the standard substance, and whose standard metal is at a premium in paper promises to pay money for any purpose, does not possess a monetary system. It has sunk to a currency system.

Monopoly Coins.—Monopoly coins, such as the Dutch 2½ guilder for 28½ millions of people in Java and other Dutch possessions forming a system of currency, cannot be compared with a scientific automatic metal monetary system at work in a country possessing its own mints. In the first-named the object is to have a counter as an intermediary in effecting exchanges which to a great extent partakes of the nature of inconvertible paper in the world at large. In the second, the object is that the substance shall do its work by the value-giving factors it contains; not only in the country itself, but in the whole world on equal terms.

Before giving a definition of the foreign and colonial exchanges, it is necessary to state what bimetallism is.

Bimetallism, or Local Dual Standards.—This is a theory and attempted practice to make one efficient, permanent, scientific, automatic monetary standard by the union of two metals,

gold and silver, at a ratio of weight to be fixed by government authority. Say the ratio is $15\frac{1}{2}$ to 1; that is, $15\frac{1}{2}$ parts of silver to 1 part of gold. Then the mint or mints of one country or many countries are to be open to the unlimited reception of gold and silver from any place or person, to be fitted for monetary purposes by the state, and to be made unlimited legal tender under state enactment in the final settlement of all monetary obligations; the payer to have the option of making payment in whichever metal he pleases. Monometallism is the treatment of one metal only for one country in the manner in which the advocates of bimetallism desire that two metals should be treated for one country.

There are two sides to bimetallism, a state or mint receptive side, and the distributive side. The closure of the mints of the Latin Union of France, Italy, Belgium, and Switzerland in 1873 against the unlimited reception of silver, in which the United States of North America joined, destroyed bimetallism on its receptive side. The distributive side of bimetallism still exists in the Latin Union and the United States of North America, though in the latter country the present law does not provide this; but the international trade of such of these countries as still possess effective monetary systems is conducted upon, and settled by gold. With the hope of benefiting others the writer would state that his mind found complete repose upon this vexed question when it had threshed out this dictum, "*No two different substances can be exchanged for any length of time upon parallel lines of quantities or values, neither can they be produced for any length of time on parallel lines of cost.*" Since the function of money is a measure of value, it must contain value of an unfettered and unfavoured character, without which it would appear impossible to possess the object desired. Hence the introduction of a legislative fixture of ratio between two substances is destructive of the chief function of money.

**Mint issue Weight of pure Gold and Silver in the World's
twenty-six chief Moneys of Account.**

In decigrams.

GOLD.

I. Egypt pound	74'375
II. British Isles pound	73'2238177254
III. Turkey pound	66'14666667
IV. Portugal milreis *	16'2570834
V. Uruguay peso	15'56149
VI. U.S.A. dollar	15'0463088154
VII. Argentina peso *	14'516129032
VIII. Brazil milreis *	8'21779167
IX. Russia rouble, new *	7'741206
X. Japan yen, new	7'5
XI. Holland guilder	6'048
XII. Chili, new *	5'4917820835
XIII. British India rupee, new *	4'8815878483
XIV. Scandinavia crown	4'0322580645
XV. Germany mark	3'5842239068
XVI. Austria-Hungary crown, new *	3'0487804878
XVII. France franc	2'9032258064

SILVER.

I. Shanghai	334'6254
II. Mexico	244'4091849
III. Japan	242'60714989
IV. Java	236'25
V. Philippines	233'64
VI. Columbia *	225
VII. Bolivia	202'5
VIII. Russia	179'960937
IX. Siam	146'645531
X. Austria	111'111111
XI. British India	106'918215096
XII. Persia	41'429836302

Countries marked * do not at present possess effective monetary systems.

Countries which cannot exchange for its notes the weight of metal indicated upon the notes without question, delay, or expense, do not possess effective metal standards. Neither does a country possess an effective monetary system wherein the standard substance for customs—payment of duties—is at a premium.

The world to-day possesses, or professes the desire to possess, seventeen or more effective gold monetary systems, the bases of the same being a fixed weight of pure gold in

each chief money of account on issue from the mints. It has nine silver monetary systems in operation, by which is meant that silver is the professed standard. The gold systems possessed or aimed at are—I. Egyptian pound; II. British pound; III. Turkish pound; IV. Portuguese milreis; V. Uruguay peso; VI. United States N.A. dollar; VII. Argentine peso; VIII. Brazilian milreis; IX. Russian rouble; X. Japanese yen; XI. Dutch guilder; XII. Chilian condor; XIII. British Indian rupee; XIV. Scandinavian crown; XV. German mark; XVI. Austria-Hungarian mark; XVII. French franc.

The silver systems possessed or aimed at are—I. China tael; II. Mexican peso; III. British dollar; IV. Java rix-dollar; V. Philippine dollar; VI. Bolivian boliviano; VII. Siamese tical; VIII. Persian kran; IX. Columbian dollar, among 18,034,000 people in Central and South America. Assuming that there are 1,300,000,000 people engaged in and affected by inter-colonial and international prices of things through the seven diverse intermediaries, it is of some interest and of great importance to know the numbers of people using each class of intermediary. The following approximate numbers may be ventured:—I. Automatic gold with gold-cum-coinage charge, 268,667,000; II. automatic silver; also silver-cum-coinage charge, 443,470,000; III. silver-cum-counter charge, 266,000,000; IV. inconvertible paper, based either upon gold or upon silver, chiefly the former, 268,667,000. Japan and Peru have just closed their mints against the reception of silver from the public.

Gold.—It will be noticed that there are three pounds possessed by Egypt, the British Isles and Australasia, and Turkey. The heaviest is 12·69 grains of pure gold more than the lightest. The Brazilian milreis is little more than one-half the weight of the Portuguese milreis. There are six pesos and dollars, the heaviest being 2·83 grains of pure gold more than the lightest. The Argentine peso is five times the weight of a franc. The study of the 967 equivalents presented in the following tables affords matter for interesting reflection. Such questions as the following

might be asked :—Why such a trifling difference between the British and the Egyptian pound as 1·77 grains on a weight of 113·0016? Why such trifling differences between the weights of pure gold in the dollar family? The Newfoundland dollar and the British pound have a common basis. The weight of gold represented by one halfpenny is the same as that represented by the Newfoundland cent, so that 4s. 2d. in the British monetary system and a dollar in the former Newfoundland monetary system indicate the same weight of pure gold, namely, 23·542008 troy grains. One is tempted to imagine that the motive for these minute differences might have been the determination that these measures of value ought not to be the same weights, or the mistaken idea that if not the same the lesser could do the work of the greater.

Silver.—The difference between the lightest and the heaviest of the five silver dollars is only 17·4360 grains, or 4·7 per cent. upon the lightest weight equal in value at 38d. per ounce to $1\frac{1}{2}d.$ The trade dollar is no longer coined. Taking the twenty-eight metal measures of value, it will be noticed that there is only one which has a round number of grains, namely, the rupee, with 165 grains of pure silver; all the rest run into decimals of a grain.

At the present time the British Isles, Australasia, Canada, etc., the United States of North America, etc., Germany, France, Belgium, Switzerland, Scandinavia, Holland, and Egypt may be said to possess effective gold monetary systems for the conduct of international trade.

At the present time China, Corea, the Straits, the Philippine Isles, Siam, a Republic or so in America, the isles of the Pacific, Persia, and Mexico, may be said to possess effective silver monetary systems for the conduct of international and their internal trade to the extent that the silver currency has permeated their territories.

Money Weights.—The table of weights by which money is weighed in each country. The French system of weights is used in ten out of the fifteen gold monetary systems, and in three out of the twelve silver monetary systems (the trade

dollar is no part of a special monetary system); troy weight is used in three of the gold monetary systems.

Weights by which Gold and Silver are Sold.—The kilogram or half kilogram of pure metal is used in ten gold and in three silver monetary systems. In the United States of North America, both gold and silver are sold by the ounce, or 480 grains of pure metal. In the British Isles they are sold by the standard ounce, or 440 troy grains of pure gold and 444 troy grains of pure silver.

The Ratio of Silver to Gold.—This ratio is established by the variable gold price of silver in gold-standard countries, and the variable silver price of gold in silver-standard countries. This factor furnishes a very valuable means for quickly and accurately determining upon the weights of gold and silver the absolute par value between the gold and silver in different monetary systems.

Gold for Silver.—To find the ratio of gold to silver in a gold-standard country.

This ratio is found by dividing the gold sign for any weight of gold by the gold sign for an equal weight of silver. It does not matter in the least what the weight is. We will take a grain.

To find the ratio in a gold-standard country.

The gold sign for an ounce of gold (440 grains pure gold) in such a gold-standard country as Great Britain is £3 17s. 10½*d.*, or 934·5*d.*

Hence the gold sign for one grain is $\frac{934\cdot5}{440}$ *d.*

Again, the gold sign for an ounce of silver (444 grains) is 38½*d.*, as quoted in the daily papers of to-day, say.

Hence the gold sign for one grain of silver is—

$$\frac{38\frac{3}{16}}{444}, \text{ or } \frac{611}{16 \times 444}.$$

The ratio we require is then—

$$\frac{934\cdot5}{440} \div \frac{611}{16 \times 444}, \text{ or } \frac{934\cdot5 \times 444}{440} \div \frac{611}{16},$$

and we have expressed it in this shape, because it is plain

that in a gold standard country it is only the gold sign for silver which changes, and so the fraction $\frac{934.5 \times 444}{440}$ is a

constant which, on reduction, we find to be 942.995...*d*.

The ratio of gold to silver is, then, at once obtained by dividing 942.995...*d*. by the pence quoted at any time, as the gold sign for an ounce of silver. In this instance the ratio is 24.694 to 1.

Otherwise.—In the British Isles it is desired to know the ratio of silver to gold by a price of 38½*d*. per ounce, or 444 troy grains of pure silver. Then divide 38.25 by 2.123863*d*., the sign for one grain of gold, and the result is 18.1273 grains of gold: 444 grains of silver divided by 18.1273 grains of gold gives the ratio between gold and silver at 24.492; this is 24.492 parts of silver to 1 part of gold. A shorter method for reaching the same result is by the use of a constant. Under the British monetary system this constant is 942.995. This figure is reached by answering the question, If 240*d*. is the British monetary sign for 113.001605 troy grains of pure gold, what will the sign of 444 troy grains of gold be? The answer is 942.995. This constant, being divided by the British gold price of silver of the day, gives the ratio indicated by the price.

Silver for Gold.—To find the ratio of silver to gold in a silver-standard country.

This ratio is found by dividing the silver sign for any weight of silver by the silver sign for an equal weight of gold. It does not matter in the least what the weight is. We will take a grain.

The silver sign for one tola (180 grains) of gold in India is quoted as R21 8a. 1p. in the Indian daily paper of to-day, say, or R21.5052083.

Hence the silver sign for one grain of gold is $R \frac{21.5052083}{180}$

Again, the silver sign for 165 grains of pure silver is one rupee, for the rupee contains 165 grains of pure silver when issued from the mint.

Hence the silver sign for one grain of silver is $R \frac{1}{165}$

The ratio we require is then $\frac{21'505208\dot{3}}{180} \div \frac{1}{165}$

Thus—

(i.) This ratio = $21'505208\dot{3} \times \frac{165}{180} = 21'505208\dot{3} \times \frac{11}{12}$,

(ii.) This ratio = $21'505208\dot{3} \div \frac{180}{165}$
 $= 21'505208\dot{3} \div 1'090909$

In either way we have first to express the silver sign for a tola of gold in rupees and decimals of a rupee.

(i.) If we multiply this by 11 and divide by 12 ; or, what is the same thing, subtract from it $\frac{1}{12}$ part, we get the ratio.

Or (ii.) If we divide this by 1'090909, we get the ratio, and this is 1 to 24'492.

Otherwise.—In India it is desired to know the ratio between silver and gold established by a price of R26 11a. 5p. for one tola or 180 troy grains of pure gold. Then divide 5129'8p. by 1'1636p., the sign for one grain of silver, and the result is 4408'56 grains of silver ; 4408'56 grains of silver, being divided by 180 grains of gold, gives the ratio between the two metals at 24'492 ; this is 24'492 parts of silver to one part of gold. A shorter method for reaching the same result is by the use of a constant. Under the Indian monetary system this constant is 1'0909. This figure is reached by answering the question, If one rupee is the Indian monetary sign for 165 troy grains of pure silver, what will be the sign for 180 troy grains of silver ? The answer is R1'0909. The price of a tola or 180 grains of pure gold, being divided by this constant, gives the ratio of silver to gold indicated by the price.

Premium or Discount on Fixed and Absolute Pars.—Deviations from par due to transmission and coinage charges upon the standard metal ; interest for the use of money ; profits to dealers in exchange ; the different degrees of credit enjoyed by parties to a bill of exchange ;—all these considerations affecting the rate of exchange, and adding to or diminishing from the weights of standard metal, are dealt with by premium and discount upon fixed and absolute pars of exchange.

CHAPTER II.

The mechanism of the interchanges of things—Most important knowledge possessed by the experts in the foreign and colonial exchanges—International traders and financiers—Automatic pure gold monetary system, Great Britain—Automatic pure silver monetary system, China—British India silver-cum-countercharge currency system—Argentina inconvertible paper based on gold currency system—Peruvian inconvertible paper based on silver currency system—Gold-cum-coinage charge and silver-cum-coinage charge currency systems—The foreign and colonial exchanges of intermediaries—Eight descriptions of currency—Exchangeable things—Table I.

The mechanism of the interchanges of things between man and man and between community and community is a very important branch of sociology, which it becomes every educated person to understand. In the exchange of one thing for another thing the conditions of barter should be preserved. Perhaps it may be accepted that economists admit that the terms and conditions of barter are: value-giving factors in this thing with or without an unearned increment, in exchange for value-giving factors in another thing with or without the unearned increment; and without the use of an intermediary. Nearly the whole ingredients in value are, past and present labour of the minds and limbs of mankind, assisted by tools, machinery, and beasts of burden. A dogma of J. S. Mill's, "That the substitution of money for barter makes no difference in exports or imports, nor in the law of international values," Book III., Chap. 21, has been generally considered sound by economists. Under given conditions it would be sound. The necessary condition is that prices and rates of foreign and colonial exchanges indicate throughout the whole world one standard substance and measure of value. Now 1,400,000,000 people inhabiting 200 parts of continents and islands of this world have set

before themselves definite weights of gold here and definite weights of silver there as their chief moneys of account, measures of value and most liquid property. These moneys of account are seventeen weights of pure gold, and nine weights of pure silver. But many millions of these 1,400,000,000 people have neither a working gold standard nor a working silver standard, and therefore it is of great importance to know what among each peoples constitutes the price of a thing and the intermediary in international and intercolonial interchanges of properties and raw and manufactured articles.

Most important facts experienced by Experts in the Foreign and Colonial Exchanges of Intermediaries, International and Intercolonial Traders and Financiers.—1,400,000,000 people in different places use seven different descriptions of prices and the same number of different rates of exchange of intermediaries. These intermediaries are :

- i. Automatic pure gold.
- ii. " " silver.
- iii. Gold-cum-coinage charge.
- iv. Silver " "
- v. " cum-counter* charge.
- vi. Inconvertible paper based on gold.
- vii. " " " silver.

**Counter* denotes that by legislation a fictitious value is imparted to the standard substance ; as in British India the rupee—165 troy grains of pure silver—does the work of 235·5 grains of pure silver in the exchanges of intermediaries.

Everything, whether it be raw or manufactured goods, titles to properties, or interest-bearing securities, transmitted from one country to another country for sale or for interchange for other goods or properties, necessarily has the currency of the country as good as weighed out, or counted out, if it is not a weight of metal, for it ; and the thing sent undergoes the same process on reaching the country to which it is sent. Some transactions involve two prices and one rate of exchange—one price in the country sending the

thing and the other in the country receiving it; and a rate of exchange of the intermediaries. Other transactions involve four prices and two rates of exchange. Say goods or property from country A to country B to be exchanged for goods from B to A—this would entail four prices and two rates of exchange: in A price of the thing sent and another of the thing received, in B price of the thing received and another of the thing sent; a rate of exchange for the thing sent from A to B, and another rate for the thing sent from B to A. By no possible device can the action of the exchanges of intermediaries be avoided. It should be noted that any alteration in the ratio between the intermediaries is measurable. These facts should have the serious attention of economists.

The Monetary System of the British Isles: Automatic Pure Gold.—The monetary system in the British Isles is one of pure gold. It is a scientific automatic monetary system in this respect. The substance gold is neither fettered nor favoured. There is no coinage charge. The weight of pure gold presented at the Mint is returned to the presenter of it in the shape of sovereigns and half-sovereigns, and no charge is made for providing and mixing alloy with the pure gold and impressing the lump of metal with its beautiful stamp. Promises to pay money in the shape of Bank of England and other banks' notes are used, as are also tokens for gold in silver and bronze, the former limited to 40 shillings in one payment and the latter to 12 pence in one payment as legal tender. So long as a scientific automatic gold monetary system is maintained in the British Isles it is a fact that for each payment for anything within the country, whether it be £10,000 or one penny, pure gold is as good as weighed out for the thing purchased. There is a remnant of barter in these Isles in the truck system, and the exchange of one thing for another thing without the use of the intermediary. The rate of exchange in the British Isles for each of the other six intermediaries is a definite number of grains or decigrams of pure gold. The number of grains depends for each class of intermediary upon the ratio of the day between the currency

of the British Isles and the currency of any other country possessing one of the other six intermediaries.

The Monetary System of China: Automatic Pure Silver.—On the sea-board of China the monetary system consists of pure silver. The government does nothing to fetter or favour pure silver. I am under the impression that among the alumni in China, money, *real money*, is better understood than it is in other countries. The Abrahamic method of dealing with it is the practice in that land. The mind has never been confused with monetary signs for weights of money. They have no signs to indicate weights of pure silver, for weights alone are used, such as the tael, of variable weight in different parts of the country, the equivalent in English weight ranging from 525·79 to 571·14 troy grains for 9 descriptions of silver taels. The mass of the people use bronze tokens called cash. These have a hole in the centre, and are carried in strings formed of them. There is a very large circulation of promises to pay metal. These bank notes are issued without state authority. It is impossible to make an estimate of the quantity of this kind of paper afloat. On the seaboard all prices are pure silver prices, and weight of silver is made for things bought and sold. Pure silver is the intermediary in international interchanges of things.

British Indian Present Currency System: Silver-cum-counter Charge.—One of the greatest blessings conferred upon British India by the British Empire was the establishment and upkeep of an effective metal monetary system with an issue of state notes for a number of currency circles, the notes of each circle encashable within each circle only. The breakdown of the unscientific and delusive fixture of ratio between gold and silver in 1873 so dangerously affected the finances of India through the higher silver price of gold, that the Government of British India, with the sanction of the British Government, closed the mints against silver and imposed an import duty on that commodity of 5 per cent. This act destroyed the standard. Under the old regulations

British India never had a scientific automatic silver monetary system such as China has possessed for her international trade, because a charge for coinage of silver into rupees was made of $2\frac{1}{8}$ per cent. by the government. Therefore, the currency of India was a silver-cum-counter charge one. The Government of British India has set before itself to obtain a gold currency in a rupee containing 7.53344 troy grains of pure gold; this weight is $\frac{1}{16}$ of the weight of pure gold in the pound, and the British monetary sign for it is 16 pence. At present the rate of exchange between the British Indian intermediary of silver-cum-counter charge and the British intermediary of pure gold is 1s. $3\frac{1}{8}d.$ for the silver rupee. The present world-wide value of the 165 troy grains of pure silver forming the rupee is 10.6 pence with a falling gold price of silver. This price of 10.6 pence compared with 15.125 pence shows that by legislation a fictitious value of 42.7 per cent. has been conferred upon the rupee as an international and intercolonial intermediary. In other words, as an intermediary in all British India's outside operations the 165 grains of silver in the rupee do the work of 235.5 troy grains to the damage of British India's competitive trade with countries possessing a pure silver currency for similar articles supplied by each to the rest of the world. Professor Lexis, of Germany, thus commented in 1896 upon the action of the closure of the British Indian mints against the reception of silver from the public in 1893: "The Indian Government resolved on the measure it took in 1893 in the hope that it would succeed in making the course of the rupee independent of the price of silver, and to fix it at least at 16 pence. . . . England, indeed, did not grasp the matter even theoretically correctly. It believed that the rise in the value of the rupees could be produced by their greater rarity, or by increasing their purchasing power in the interior; while really there was only a question of influencing the Anglo-Indian rate of exchange." Prices on the sea-board of India may be quoted as silver prices, and if they have advanced at all, it has been out of all proportion to the

altered ratio between gold and silver. In all intercolonial and international interchanges of intermediaries, British India now uses a silver-cum-counter charge currency, and the rate of exchange of the intermediary is a silver-cum-counter charge rate.

Argentine Republic Currency System: Inconvertible Paper based on Gold.—The professed standard of this country is a peso containing on issue from the mint five times the weight of pure gold in the franc, i.e. 22'401795 troy grains. The currency is, and has been for years, inconvertible paper, in which the price of gold has ranged during the past ten years from 110 to more than 450 per cent. premium. The present premium is 210 per cent. To give an instance of what this means, we will compare gold equivalents between the British Isles and the Republic with the rate of exchange between the countries with gold at 210 premium in Argentina. The monetary sign in the British Isles for the weight of gold in the peso is 47'578 pence: the equivalent discount to 210 per cent. premium is 67'53 per cent., the sum is $\frac{210 \times 100}{310}$

=67'53 per cent. discount. This discount applied to 47'578 pence leaves 15'449 pence. Pence 15'449 or 7'27 troy grains of pure gold command a paper peso or a note promising to pay on demand in exchange for the same 22'401795 troy grains of pure gold. This and the last class of currency first described, though having a basis of metal ostensibly, but not always really, are of a most unsatisfactory nature from the wide fluctuations from actual metal equivalents to which they are subject. That these fluctuating ratios between the four intermediaries that we have considered have a serious and most disturbing effect upon international and intercolonial interchanges of things should be understood and admitted by all. Inconvertible paper prices of all things, including the world's other six currency intermediaries, exist here.

Columbian, U.S., Currency System: Inconvertible Paper based on Silver.—The currency of this and Central and South

American Republics is ostensibly silver. The peso contains five times the weight of pure silver contained in the silver franc, i.e. 347·2278 troy grains. Only a few years ago the British price of a Peruvian paper peso was 4 pence, or 1·88 troy grains of pure gold. Assume that at that time the ratio of silver to 1 of gold was 23 parts, then $1·88 \times 23 = 43·24$ grains of pure silver. This shows the paper price of silver at a premium of 703 per cent., or the gold price of paper at a discount of 86 per cent. Prices in Columbia were and still are inconvertible paper prices based on silver.

Gold-cum-Coinage Charge and Silver-cum-Coinage Charge Intermediaries are unscientific systems of currency. True money must consist of an unfettered and an unfavoured commodity. A fettered or favoured commodity cannot be true money upon the principles of the sound teachers of money, from Xenophon to the last writer on the lines of Oresme Copernicus and John Locke. In anticipation of the debate in the House of Commons subsequent to the issue of the Gold and Silver Report of the Royal Commission of 1886-9, the writer expressed his expectation and hope as follows:—“Should this debate prove exhaustive, surely the bi-metallic theory will be ground to powder, to be blown away, and never more presented to the human understanding, save as a striking instance of prolonged infatuation, or to point a moral upon the world’s vaunted knowledge at the end of the nineteenth century.” Eight years have elapsed since this was written, and all currency laws enacted in all parts of the world during this time testify to the opening of men’s understanding to the reception of the view that there was never a more dangerous and fallacious idea that legislative enactments can permanently frustrate natural laws. It is a vexed question whether the imposition of a coinage charge adds to the purchasing power of the metal in the country which imposes it; in the writer’s opinion it does. There is no question, because all admit that a coinage charge widens the margin of the fluctuation of the exchange of

intermediaries, and to the extent of the charge hamper the international and intercolonial exchanges of things. The coinage charges of the world upon gold and upon silver range from $2\frac{3}{16}$ per mille to 2 per cent.; this last is a very heavy charge on silver. The British Indian coinage charge was $2\frac{1}{8}$ per cent. The British exchange with India before 1873 was, say, 22 pence for a rupee, quotations for business varied by $\frac{1}{8}$ of a rupee, or 1·6 per mille; the coinage charge was nearly $\frac{1}{3}$ of a rupee. Since the coinage charges are fixed ones, there is no disturbing element of uncertainty in them.

These seven descriptions of intermediaries contain, and entail in the foreign and colonial interchanges of them, sixteen Factors. I. Pure gold weights. II. Pure silver weights. III. Monetary signs for pure gold weights. IV. Monetary signs for pure silver weights. V. Currency signs for gold-cum-coinage charge. VI. Currency signs for silver-cum-coinage charge. VII. Currency signs for silver-cum-counter charge. VIII. Currency signs for inconvertible paper. IX. Fluctuating ratios between pure gold and the six other currency intermediaries. X. Fluctuating ratios between pure silver and the six other currency intermediaries. XI. Fluctuating ratios between gold-cum-coinage charge and the six other intermediaries. XII. Fluctuating ratios between silver-cum-coinage charge and the six other currency intermediaries. XIII. Fluctuating ratios between silver-cum-counter charge and the six other intermediaries. XIV. Fluctuating ratios between inconvertible paper based on gold and the six other intermediaries. XV. Fluctuating ratios between inconvertible paper based upon silver and the six other intermediaries. XVI. Forty-nine deviations from par between these seven diverse intermediaries due to transmission charges upon the two standard metals, gold and silver, together with, as a rule, a commission for the dealer in the world's intermediaries. Each country has its own money table—a table by which money is weighed and the weights by which pure gold and pure silver are sold.

The Foreign and Colonial Exchanges of Intermediaries.—

We are now in a position to define what these exchanges really are. They are forty-nine in number. I. Gold for gold ; or for II. silver ; or for III. gold-cum-coinage charge ; or for IV. silver-cum-coinage charge ; or for V. silver-cum-counter charge ; or for VI. inconvertible paper based on gold ; or for VII. inconvertible paper based upon silver. VIII. Silver for silver ; or for IX. gold ; or for X. gold-cum-coinage charge ; or for XI. silver-cum-coinage charge ; or for XII. silver-cum-counter charge ; or for XIII. inconvertible paper based on gold ; or for XIV. inconvertible paper based upon silver. XV. Gold-cum-coinage charge for gold-cum-coinage charge ; or for XVI. gold ; or for XVII. silver ; or for XVIII. silver-cum-coinage charge ; or for XIX. silver-cum-counter charge ; or for XX. inconvertible paper based on gold ; or for XXI. inconvertible paper based upon silver. XXII. Silver-cum-coinage charge for silver-cum-coinage charge ; or for XXIII. gold ; or for XXIV. silver ; or for XXV. gold-cum-coinage charge ; or for XXVI. silver-cum-counter charge ; or for XXVII. inconvertible paper based on gold ; or for XXVIII. inconvertible paper based upon silver. XXIX. Silver-cum-counter charge for silver-cum-counter charge ; or for XXX. gold ; or for XXXI. silver ; or for XXXII. gold-cum-coinage charge ; or for XXXIII. silver-cum-coinage charge ; or for XXXIV. inconvertible paper based on gold ; or for XXXV. inconvertible paper based on silver. XXXVI. Inconvertible paper based on gold for inconvertible paper based on gold ; or for XXXVII. gold ; or for XXXVIII. silver ; or for XXXIX. gold-cum-coinage charge ; or for XL. silver-cum-coinage charge ; or for XLI. silver-cum-counter charge ; or for XLII. inconvertible paper based on silver. XLIII. Inconvertible paper based on silver for inconvertible paper based on silver ; or for XLIV. gold ; or for XLV. silver ; or for XLVI. gold-cum-coinage charge ; or for XLVII. silver-cum-coinage charge ; or for XLVIII. silver-cum-counter charge ; or for XLIX. inconvertible paper based on gold.

There is an eighth description of currency. Either gold

or silver, at the option of the payer. This still exists in the countries which aspired to the possession of the substances gold and silver to make one standard in Europe. An unlimited weight of silver is still legal tender in discharge of any debt or for any purchase in France, Italy, Belgium, Switzerland, and Greece. But this optional payment of either metal at the will of the debtor has ceased in international interchanges. The standard metal for international operations and obligations is gold in France, Belgium, and Switzerland.

One Metal Intermediary for the whole World.—We will turn from these forty-nine interchanges of seven intermediaries, also the sixteen factors embraced in them, in use in the world, to what may be in the distant future. Imagine that each empire, kingdom, republic, and island on the earth possessed a scientific automatic gold monetary system; that everywhere there is the same table of gold weight; that monetary signs had gone for ever; and that prices and rates of exchange for the one intermediary are quoted and worked in weight. Then two factors will have taken the place of the present fifteen factors: I. weight; II. deviation from par in the shape of premium or discount, i.e. greater or less weight of gold for transmission charges on the metal and a commission for the dealer in the foreign and colonial exchanges of the one intermediary. The advantages from such a change as this can be easily perceived.

With only one intermediary for the whole world the fluctuation in the exchanges, were the substance gold, would be confined within a very narrow margin, at present something like $1\frac{1}{2}$ to 2 per cent. between the most distant ports. Whereas now the fluctuation resulting from the use of the four great diverse intermediaries ranges from 1 to 200 per cent. The conditions of barter would be preserved had the world but one intermediary. Now the destruction of industries is threatened through the bonus conferred by bad intermediaries. It is true that all countries are exerting their best to get rid of bad intermediaries. It is to be hoped they

will not find it more difficult than any of them have as yet imagined. So far the experience of the past has shown that without certain conditions it is impossible to retain a gold standard. It may be secured at great cost for a time, but repeated failures have followed such temporary success because the permanent conditions necessary for its maintenance have been wanting.

Every one can see that there would be no use for this "Ready Reckoner of the World's Exchanges" if the whole world had but one currency intermediary. The possession of the substance, gold; its weight as the price of a thing, and the intermediary, with its tokens and promises to pay the gold on demand with the certainty of its being fulfilled, and a slight deviation from par for transmission charges and commission to the dealers in the intermediary, would bring prices and the foreign and colonial changes within the comprehension of children in one lesson. And some may say, having reached this simplicity, cannot it be safely extended? Do away with a substance for a measure of value. Let the whole world do its business on labour tickets issued by the state or states. In reply to this it may be advanced that a substance as a measure of value is absolutely requisite—at least, it appears so to the writer. He would repeat the question he asked in 1895: "Can anyone think out an intermediary which shall not in itself be a valuable commodity, yet fulfil the conditions of barter, and act as fairly and satisfactorily as one measure of value would for the whole world?" If there is such a genius, it is to be hoped he will come forward and produce it, and should the desired effect in the world follow, he shall have the niche reserved for him in its "Walhalla." To the objections the writer has raised against labour tickets in the "Accountant," 1895, he would add here the impossibility of one universal ticket; or of adjusting a fixed circulating ratio between the different issues of them.

I believe that there is satisfactory proof that if the whole world had only *one* intermediary of value, desired and

accepted by all as the most liquid wealth, the mechanism of the interchanges of things between individuals and different communities would be that of barter, wherein no intermediary is used ; or through the instrumentality of one intermediary. At present the mode is by the use of *seven* intermediaries, five of which are of the most diverse characters, or by barter. It is a significant and most important part of this work which treats of this subject.

Exchangeable Things.—It may be asked, What are the exchangeable things upon which the mechanism of these intermediaries are being practised ? Perhaps it may be said that the countless millions of exchanges of things carried out daily throughout the world can be included under the following terms :—I. Services of the minds of mankind. II. Services of the limbs of mankind, aided by tools, machinery, and beasts of burden. III. Portions of the earth. IV. Raw products. V. Manufactured products. VI. Animals. VII. Interest-bearing securities and titles to properties not bearing interest.

There is, no doubt, in every country a very large interchange of services for services or for other things, and of other things for other things or for services without any reference whatever to one or other of the seven descriptions of intermediaries, but such exchanges are less in number as the condition of social life improves. The last work of our great synthetic philosopher, Herbert Spencer, affords most interesting study on this subject, for he shows the root and growth of interchanges of things so far as the present teaching of economists has led him. In the index to the volume under "money" will be found "food as, and clothes, ornaments and weapons, and implements, shells and beads, and labour, coins and prices, paper currency, and capital." That a few of these eleven things have been and still are used as measures of value, and therefore come under the scientific description of money, nobody would deny. Such of these things as are used as standard substances appropriated to currency purposes containing correlative value with

the things for which they exchange may fairly come under the nomenclature of money, but it is difficult to see how they could all be so brought. The writer ventured a few years ago to tell two of our prominent British professional economists that he did not believe they would understand or could teach the subject of money until they consented to limit the definition of it to the standard substance appropriated to currency purposes in the shape of bullion and coin. Bagehot, who is a deservedly respected authority on economics, has a dogma: "That in the event of a fall in the gold price of silver there would be a rise of prices of things generally in silver standard countries." Experience since 1873 has completely disproved this with reference to India." An adjustment had to be made in prices somewhere to the altered ratio of silver to gold, and as between British India and the British Isles it took its shape in a fall of prices in the latter country.

TABLE I.

Norman's Unit of Weight System together with all the needful information—excepting per centage fluctuating charges for movement of standard metals, coinage, and commission—for working the exchanges of gold for gold or for silver, and of silver for silver or for gold, all down the ages since the use of the commodities gold and silver as measures of value and means of payment, and the introduction of chief moneys of account and coins to be counted out instead of the weight out of the monetary metals gold and silver for anything.

Col. I. Names of the chief countries using the moneys of account. Col. II. Monetary signs for the world's chief moneys of account. Col. III. Gross weights of moneys of account in troy grains on issue from the mints. Col. IV. Troy grains of pure gold and pure silver. Col. V. Monetary signs for one troy grain of pure gold and for pure silver. Col. VI. Ratio of silver to one of gold in the currencies of each country. Col. VII. Constants to determine the fluctuating ratios between gold and silver upon the gold price of silver of the day in gold standard countries and upon the silver price of gold in silver standard countries. The gold price must be used as the divisor of the constant. The silver price must be divided by the constant. In each case the result will be the ratio of silver to one of gold. Col. VIII. Parts of pure gold to pure silver in 1000 parts of metal wherewith each chief standard money of account is made. *Attached to the name of a country means that at present the currency there is inconvertible paper; † attached means that the currency consists of silver-cum-counter charge.

GOLD.

Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.	Col. VI.	Col. VII.	Col. VIII.
I. Egypt	131'174658	114'788688	8'712464 ochres.	15'00	498'330 piastres	875 pure gold
II. British Isles	123'274198	113'001605	2'123863 pence	14'287	942'2055 pence	916'666 or 1½
III. Turkey	117'3698	102'070887	30'1848 paras	15'10	481'76 paras	" "
IV. Portugal*	97'3685	25'088524	39'83840 reis	14'00	615'116 milreis	" "
V. Uruguay*	26'1887	23'015034	4'16058 centesimos	14'40	642'611 pesos	917'900
VI. United States, N.A.	25'8008	23'202034	4'36653 cents	16'00	2687'183 pesos	900 or 18
VII. Argentina*	24'80640	21'186897	4'63928 centesimos	15'50	688'888 pesos	" "
VIII. Chile	23'53431	21'019736	4'20306	16'39	728'590	" "
IX. Russia	19'10817	17'010730	18'86439 copecks	15'4	350'668 roubles	" "
X. Brazil*	13'8348	12'681957	78'83243 reis	15'4	136'878 milreis	" "
XI. Austria-Hungary*	10'45547	9'409957	10'627134 kreutzers	18'22	820'068 florins	916'666 or 1½
XII. Holland	16'370543	9'333469	10'71442 cents	15'60	1683'440 guilders	900 or 18
XIII. British India†	8'218598	7'533440	16'123863 annas	21'02	382'495 annas	945
XIV. Scandinavia	6'9441	6'222721	18'07040 orcs	14'88	1240'000 crowns	916'666 or 1½
XV. Germany	6'1458	5'531340	18'076906 prennings	13'95	1395'000 marks	900 or 18
XVI. France	4'976128	4'480359	22'31904 centimes	15'5	3444'444 francs	" "

TABLE I.

The weight of gold in the franc is the chief money of account under names attached to the following countries : Italy,^a lira ; Greece,^a drachma ; Roumania,^a lei ; Bulgaria, lev ; Serbia,^a dinar ; Roumelia, ley ; Spain,^a peseta ; Finland, mark ; Argentina, 1 peso = 5 francs. Russia has coined roubles of about 12 troy grains of pure gold ; it remains to be seen what the money of account of that country is going to be. Austria-Hungary has a new gold coin of half the weight of that above ; the remark on Russia is applicable also with regard to this country and Chile. This latter country has a new coin of 8.475112 troy grains of pure gold. The new gold coin for the gold monetary system of Japan is to be 7.5 troy grains of pure gold.

SILVER.

Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.	Col. VI.	Col. VII.	Col. VIII.
I. Shanghai	Tael weight	...	516.405843	1'9.364 cash	...	1'11067 tael	902½ pure silver
II. Mexico	Peso or Dollar	...	377.0586	2652 of a cent	16.599	40'92825 peso	900 or 10 "
III. Japan	Yen	...	374.4000	26709 " cent	16.173	15.4836 yen	945 "
IV. Java	2½ Guilders	...	364.5892	2748 " cent	...	...	900 "
V. Philippines	Dollar	...	360.5614	2773 " "	15.79	42'8008 dollars	" "
VI. Columbia, U.S. ^a	Sol	...	347.2278	288 " "	15.30	44'4444 sol	" "
VII. Bolivia	Boliviano	...	312.5050	3199 " "	...	...	" "
VIII. Russia	Rouble	...	277.7221	36027 " copeck	15	22'753 rouble	" "
IX. Siam	Tical	...	234.2711	1551 " phai-nung	...	1'144 tical	" "
X. Austria-Hungary	Florin	...	171.4708	1832 " kreutzer	15.30	45'000 florin	" "
XI. British India	Rupee	...	165.0000	1.163636 pie	15.00	1'0009 rupee	916 666 or 11 "
XII. Persia	Kran	...	63.0316	3173 shahis	...	2'255 kran	" "

The Chinese are preparing silver dollars which are to be $\frac{72}{100}$ of the tael $\frac{9}{10}$ pure silver. The gross weight should be 443.535407 troy grains, and the weight of pure silver 371.812207 troy grains. In Siam 5 ticals are by law made equal to 3 Mexican dollars. This would make the pure silver in the tical 226.2352 troy grains. Muhleman, a present day American authority, states that it is nominally 213.875 troy grains of pure silver.

CHAPTER III.

A table of gross and pure weights in troy grains of 16 gold and 12 silver chief moneys of account of the world, with all necessary information for working the world's exchanges between effective gold and silver monetary systems—Norman's Unit of Weight System—Ratio between gold and silver—Construction and use of the Column of Constant—International interchanges upon the terms and conditions of barter through the use of one universal intermediary—Table of ratios between gold and silver in British prices, from the ratio of 14.73 of silver to 1 to 103.77 to 1 of gold. American and Japanese tables showing at a given date these countries valuations of foreign coins.

THE weight of the sol is used under different names. Ecuador, sucre; Costa Rica, Guatemala, Honduras, Nicaragua, and Columbia, under the name peso. The French metric system of money is used in all the countries of Europe, except Russia and Turkey. In Central and the whole of South America, except British and Dutch Guiana and British Honduras, also in Mexico. Troy weight is used in the British Isles, Canada, West India Islands, Australasia, and the United States of North America. It will be noticed that there are in this table 16 gold and 12 silver weights, but Austria, Russia, and British India appear both under gold and silver. There is no standard in British India. A standard cannot exist unless the mints are open to receive and coin the professedly standard metal, and by actually coining it and making prices through it. The aim is that prices in British India should become gold prices instead of silver prices as they were until 1893, and still are. The currencies of Russia, Austria-Hungary, Chile, and Japan are in a transition and experimental state. Some of them have something more than a mythical gold standard. Gold coins of the weights desired have been made by these countries.

The test of an effective metal monetary system is meeting any demand for the encashment of state promises, or promises which should be as good as state promises, to pay them by making the exchange for them in the weight of standard substance promised without question, delay, or expense. Can it be expected that very shortly now it will be the happy experience of those four countries to meet their promises in gold? Current history is full of experiences of temporary effected metal currency systems procured at the cost of increase of national debt and a speedy loss of the same from one cause or another. One great cause is the condition of international interchanges rendering it impossible for a country to retain its standard substance which is its most liquid wealth. With this table before us, it may be best to enter fully into it, and thus prepare the mind for the interchanges of the intermediaries pure gold and pure silver. After this we can go on to the Foreign and Colonial Exchanges of the World's present seven intermediaries, and endeavour to unfold the so-called mysteries of these exchanges.

It is necessary to make a very careful investigation into the structure and use of Cols. IV., V., and VII.

Col. IV.—Mint issue weights in troy grains of pure gold and pure silver in the world's chief moneys of account. These weights are obtained by taking the proportions of fine metal indicated in Col. VIII. and applying them to the gross weight in Col. III., thus, against the Egyptian pound is found in Col. VIII. that the pure gold in that pound is 875 parts in 1000 parts. The sum is $131'174958 \times 875 \div 1000 = 114'778088$ troy grains of pure gold. Against the British pound $\frac{11}{12}$ pure gold is found in Col. VIII. One-twelfth deducted from the gross weight of the British pound Col. III., $123'274478 - \frac{1}{12} = 113'001605$ troy grains of pure gold. The use of pure metal is of vast importance in reducing to the utmost simplicity the foreign and colonial exchanges of pure gold and pure silver intermediaries by the mode of using the chief moneys of account. Fixed pars or equivalents between gold moneys of account (17) are nothing

more than different monetary signs for the same weight of pure gold. Between silver moneys of account there are different monetary signs for the same weight of pure silver. The division of one weight of pure metal indicated by the monetary sign of another weight of the same metal indicated by another monetary sign gives the desired monetary sign which is par or the equivalence sought for. Thus, it is desired to know the fixed par or equivalent in French gold for the British pound both at mint issue weight. The sum is (see Col. IV.) pound $113\cdot00615 \div$ franc $4\cdot480359 = 25\cdot22\cdot155c.$, thus 25 francs 22·155 centimes, and is the monetary sign for $113\cdot001605$ troy grains of pure gold in France. It is desired to know fixed par at mint issue weight between the British Isles and France, the sum is $4\cdot480359 \div 113\cdot001605 = \pounds 0\cdot39648$ or 9·515 pence, this is $9\frac{1}{2}$ pence for one franc. The simplicity and the beauty of this mode of arriving at fixed pars is most pronounced when it is placed in juxtaposition with the Cambists' method of arriving at fixed pars.

EXAMPLE FROM TATE'S MODERN CAMBIST.

$$? = \pounds 1$$

$$\pounds 1869 = 480 \text{ ounces troy } \frac{11}{12} \text{ standard}$$

$$\text{One ounce standard} = 31\cdot10349552 \text{ grams } \frac{11}{12}$$

$$\text{Grams standard 12} = 11 \text{ grams fine}$$

$$\text{Grams fine 900} = 1000 \text{ grams French cr}$$

$$\text{Grams 1000} = 3100 \text{ francs}$$

$$\frac{480 \times 31\cdot10349552 \times 11 \times 1000 \times 31\cdot00}{1869 \times 12 \times 900 \times 1000} = \text{francs } 25\cdot22\cdot\frac{3}{20}$$

NORMAN'S METHOD.

$113\cdot001605 \div 4\cdot480359 = \text{francs } 25, 22\cdot155 \text{ centimes.}$ The statement in the Cambists' method of arriving at the par of exchange comprises 6 equivalentents and 45 figures, Norman's 17 figures. In working out the different sums the Cambists employ 157 figures, Norman's method 95 figures. The

writer's "Guide to sailors and travellers" presents these unchanging equivalents 15 for each of the world's 16 gold moneys of account and 8 for each of the world's 9 silver moneys of account. In this Guide also is a table of the equivalents of the 9 silver moneys of account to each of the world's 16 gold moneys of account in the proportion of 1 part of silver to 1 part of gold. The construction of this table, with its use, will be described later on.

Norman's Unit of Weight System.—The writer and many others, first of whom, Dr. Linderman, Mint Master of the U.S.A. in 1875, and later many well-known economists, have found that this most powerful factor is the key to the science of money. It is a tool to unmask monetary and currency signs and to reveal the weights of pure gold and pure silver indicated by such signs. To do this another sign has to be made and the weights of the world's chief moneys of account and tokens for money converted into one system of money weights. Cols. III. and IV. present these weights in troy grains. This other sign is found for one troy grain of pure gold and pure silver, and in Col. V. is attached to each chief money of account. Each monetary sign for one troy grain of pure metal is obtained by dividing the small change for each money of account such as the pence in the British pound, the cash in the tael, the centimes in a franc by the weight of pure gold or pure silver in each of the 25 chief moneys of account.

The foreign and colonial exchanges of intermediaries are always based upon the mint issue weight of pure gold or of pure silver in the world's chief moneys of account. It is so whether the currency at the time consists of either of the five different descriptions of currency besides pure gold and pure silver currencies.

Rules and Examples—

I. To find the gold monetary sign for one troy grain of pure gold. Divide the units of the money of account in the country for which the investigation is made by the weight of pure gold in the chief standard money of account on issue from the mint, and the result will be the answer.

Thus there are 240 pence in a sovereign, and there are 113'001605 troy grains of pure gold in the sovereign, the sum is

$240 \div 113'001605 = 2'123863$ pence monetary sign for one troy grain of pure gold.

II. To find the silver monetary sign for one troy grain of pure silver. Divide the units of the money of account in the country for which the investigation is made by the weight of pure silver in the chief standard money of account on issue from the mint, and the result will be the answer.

Thus there are 100 centesimos in a Mexican peso, and there are 377'0596 troy grains of pure silver in the peso, the sum is

$100 \div 377'0596 = .2650$ centesimos the monetary sign for one troy grain of pure silver.

III. To find the variable gold price of one grain of pure silver, the gold price per ounce or other weight of silver must be divided by the weight of pure silver bought to obtain the answer.

Thus, say the price of silver in the British Isles is 27 pence per ounce or 444 troy grains, the sum is

$27 \div 444 = .06081$ of a penny per troy grain.

IV. To find the variable silver price of one troy grain of pure gold the silver price of gold must be divided by the weight of pure gold bought to obtain the answer.

Thus, say that in Mexico the price of gold is 1390 pesos per kilogram or 15432'34 troy grains, the sum is

$1390 \div 15432'34 = .09$ or 9 centesimos per troy grain.

This factor is used both as a divisor and a multiplier. As a *divisor*. Find the weight of pure gold indicated by £3 17s. 10½d. The sum is £3 17s. 10½d or 934'5 pence $\div 2'123863$ pence = 440 troy grains, ans. The British standard ounce of gold contains 440 troy grains of pure gold and 40 troy grains of alloy. As a *multiplier*. Find the British monetary sign for 440 troy grains of pure gold. The sum is $440 \times 2'123863 = 934'4997$ pence or £3 17s. 10½d.

Ratio between Gold and Silver.—Another very valuable tool which the writer has brought into prominence is the use of

the constantly varying ratio between gold and silver. Before 1873 this ratio fluctuated round $15\frac{1}{2}$ parts of silver to 1 part of gold, due to the very unscientific attempt to make one permanent measure of value out of two substances which were always varying in relative cost of production. That the mint arrangements of the world were of such a nature as to hold these substances for currency purposes at about this relation, the writer has never doubted; but the effect of it was to confer a monopoly value upon silver to the enrichment of the silverites, and at the cost of the rest of the world. On the closure of the mints of Europe against the reception of silver from the public this ratio became higher, and on the closure of the British Indian mints against silver from the public and the imposition of a 5 per cent. duty on silver imported into British India, the ratio became much higher, until to-day it stands at 31.63 parts of silver to 1 part of gold. But this is not the highest which is to be expected. It is very probable that the natural ratio between the two metals is near to 60 parts of silver to 1 part of gold. This daily ratio between the metals is one of the most important pieces of information the commercial world can possess. This was realized by Mr. Ellis, the late city editor of the *Times*, but there appear to be objections to its publication in that paper, as it is not yet inserted. It is true that the *Times* and all papers giving news of the London markets quote the daily price of silver, and that the ratio can be easily ascertained from the gold price of silver. The mode is simply the division of a constant 942.9955 in the British Isles by the price of silver of the day in pence, and the result is the ratio. Two weekly papers were the first in London to insert the ratio for six days, now two corn papers give the ratio daily. To return for a moment to the silver currency used as tokens for a weight of gold in these islands. The coining ratio between the metals is 14.287 of silver to 1 of gold. With this knowledge, the weight of gold in the sovereign being known, the weight of pure silver in each class of tokens is readily ascertained. It is desired to know the mint issue weight of pure silver equivalent to the pound

at this ratio, the weight of gold multiplied by the ratio gives the weight of pure silver in twenty shillings equivalent to the weight of gold. The sum is $113\cdot0010605 \times 14\cdot287 = 1614\cdot45$ troy grains of pure silver; $\frac{1}{20}$ of this shows that the mint issue weight of pure silver in the shilling is $80\cdot72$ troy grains. Twenty shillings to be of equivalent value to the gold in a sovereign to-day should at the present ratio contain $3574\cdot24$ troy grains of pure silver, and the shilling $178\cdot71$ troy grains of pure silver.

TABLE II.

TABLE OF RATIOS OF SILVER TO 1 OF GOLD AT FLUCTUATING LONDON PRICES OF ONE STANDARD OUNCE, OR 444 TROY GRAINS OF PURE SILVER. COL. I.—PRICE OF SILVER IN PENCE. COL. II.—RATIO RESULTING FROM THE PRICE ATTACHED.

Col. I.	Col. II.	Col. I.	Col. II.	Col. I.	Col. II.	Col. I.	Col. II.
<i>d.</i>		<i>d.</i>		<i>d.</i>		<i>d.</i>	
64	14'73	26 $\frac{3}{4}$	35'25	22 $\frac{3}{4}$	41'45	18 $\frac{3}{4}$	50'29
60	15'71	$\frac{1}{2}$	35'58	$\frac{1}{2}$	41'91	$\frac{1}{2}$	50'97
50	18'86	$\frac{1}{4}$	35'92	$\frac{1}{4}$	42'38	$\frac{1}{4}$	51'67
40	23'57	26	36'27	22	42'86	18	52'39
30	31'34	$\frac{3}{4}$	36'62	$\frac{3}{4}$	43'36	$\frac{3}{4}$	53'13
$\frac{3}{4}$	31'70	$\frac{1}{2}$	36'98	$\frac{1}{2}$	43'86	$\frac{1}{2}$	53'88
$\frac{1}{2}$	31'97	$\frac{1}{4}$	37'34	$\frac{1}{4}$	44'32	$\frac{1}{4}$	54'61
$\frac{1}{4}$	32'24	25	37'72	21	44'90	17	55'48
29	32'52	$\frac{3}{4}$	38'10	$\frac{3}{4}$	45'44	16	58'94
$\frac{3}{4}$	32'80	$\frac{1}{2}$	38'49	$\frac{1}{2}$	46'00	15	62'86
$\frac{1}{2}$	33'09	$\frac{1}{4}$	38'88	$\frac{1}{4}$	46'56	14	67'36
$\frac{1}{4}$	33'37	24	39'29	20	47'15	13	72'54
28	33'68	$\frac{3}{4}$	39'71	$\frac{3}{4}$	47'75	12	78'58
$\frac{3}{4}$	33'98	$\frac{1}{2}$	40'12	$\frac{1}{2}$	48'36	11	85'73
$\frac{1}{2}$	34'29	$\frac{1}{4}$	40'56	$\frac{1}{4}$	48'98	10	94'30
$\frac{1}{4}$	34'60	23	41'00	19	49'63	9	103'77
27	34'92						

The assayer to the British Mint furnished an estimate of the average cost of the production of silver to the Royal Gold and Silver Commission, 1886-9, per 17 pence per standard ounce.

Construction and use of the Constant, Column VII.—The purchase of silver in an effective gold system and the purchase of gold in an effective silver system is just the same as weighing out one metal against the other. You have in each one a monetary sign for a definite weight of the other

metal. Strip off the sign and the weight appears. Thus, silver is sold here per standard ounce or 444 troy grains of pure silver. The price to-day is $29\frac{3}{4}$ pence per 444 troy grains. What weight of gold does $29\frac{3}{4}$ pence indicate? Divide the price by the monetary sign for one troy grain of gold, and the result gives the grains; the sum is $29\cdot75 \div 2\cdot123863$ pence = $14\cdot007$ troy grains of pure gold. To find the ratio, the silver [for which the price is quoted must be divided by the gold, and the ratio is the answer. The sum is $444 \div 14\cdot007 = 31\cdot70$ parts of silver to 1 of gold. Under gold the figures are arrived at by giving the monetary signs for grains of pure gold; the grains are taken of the same number as those of silver for which the price is quoted. The result is the same whether the gold monetary sign for a weight of gold be compared with a gold monetary sign for the same weight of silver, or the actual weights of gold and silver indicated by the signs are compared. The British Constant is 942·995, because this is the British sign for 444 troy grains of pure gold, 942·995 pence. With this factor and a price of $29\frac{3}{4}$ pence we can check the comparison of weights just given. The sum is $942\cdot995 \div 29\cdot75 = 31\cdot70$. The result is the same as dividing the weight 444 grains of silver by $14\cdot007$ troy grains of gold. Take Japan as an instance of the use of the Constant in countries possessing a silver standard. Gold is sold in Japan per 100 mommes or 5797·0632 troy grains. The Japanese monetary sign for this weight of silver is 15·4836 yens. In this case the Constant is the Japanese monetary sign for 5797·0632 troy grains of pure silver. But as the price is for pure gold the Constant is used as the divisor of the Japanese price of gold, and consequently the result is the ratio of silver to one of gold. Say the price of 100 mommes of gold in Japanese is 495·475 yens, what ratio does this establish between gold and silver? The troy grains of pure silver indicated by 495·475 yens must be found and comparison of that weight with 5797·0632 troy grains of gold instituted. The sum is $495\cdot475 \text{ yens} \div \cdot26709$ of a sen, the Japanese monetary sign for one troy grain of silver = 185·508 troy grains of silver.

This weight of gold, viz. 579·0632 troy grains, divided by the weight of silver gives a ratio of 32 of silver to 1 of gold. Check this by the use of the Constant 495·475, the price divided by the Constant 15·4836 gives the ratio of 32 parts of silver to 1 part of gold. The ratio applied to tables specially constructed for the purpose would save much time in determining the equivalent of gold to silver and of silver to gold. A gold table giving the 144 equivalents in monetary signs for the nine silver moneys of account, and a silver table giving the 144 equivalents in monetary signs for the sixteen gold moneys of account at the ratio of one part of silver to one part of gold effects this upon the application of the ratio of the day to the gold table as a divisor, and to the silver table as a multiplier. Take two illustrations of the working of such tables. Say it is desired to know the equivalent for one tael in a British pound or pence at 31·63 parts of silver to 1 of gold. Under Britain and against tael there would be found in the gold table both £4·588921 and 1101·34 pence, these two sums divided by the ratio 31·63 give respectively £·14508 and 34·82 pence. Check this by the unit of weight system. The gold equivalent to the silver in the tael and that multiplied by the British monetary sign for one troy grain of gold will give the answer. The sum is $518·5555 \div 31·63 \times 2·123863 = 34·81$ pence. It is desired to know in Japan the equivalent to one U.S.A. dollar at 31·63 parts of silver to 1 of gold. Under Japan and against U.S.A. will be found the Constant ·0620192 of a yen, this multiplied by 31·63, the ratio, gives yen 1·96, and shows that at this ratio the equivalent Japanese money for the American dollar is 1·96 yen. Check this by the unit of weight system. The weight of gold in the dollar multiplied by the ratio and the result divided by the weight of silver in the yen gives the answer. The sum is $23·22 \times 31·63 \div 374·4 = \text{yen } 1·96$. These calculations are made very easy by the presentation of the multiples of the 16 gold weights of pure gold and monetary signs for the same, and 8 silver weights of pure silver and monetary signs for the same, to be found in the writer's "Ready Reckoner of the World's Exchanges."

For the conversion of gold moneys of account into silver moneys of account, and of silver moneys of account into gold moneys of account, short methods, both based upon the gold table, refer to Table VII. of the "Guide to Sailors and Travellers." As instances of the working of this method we will apply it to the exchanges of a tael for sterling and Japanese money for an American U.S.A. dollar. The British sign for a tael at one part of silver to one part of gold is £4.588. The sum is $£1 \div 31.63 \times 4.588 = 34.80$ pence. For the exchange of a U.S.A. dollar for Japanese money, at the ratio of one to one the U.S.A. monetary sign for one yen is 16.124 dollars. Take one dollar, multiply it by the ratio, and divide by 16.124, the result will be the answer. The sum is $1 \times 31.63 \div 16.124 = 1.96$ yen. With these factors and tools shown in Columns IV., V., and VII., and in the "Sailors' and Travellers' Guide," and in the "Ready Reckoner of the World's Exchanges," all the tables of fixed and absolute pars shown in the writer's books of 1892 and 1893 can be produced by any accurate worker of decimals. It is sometimes proposed, by intelligent people even, that the requirement of the world is an universal coin. Professor Ingram, of the Dublin University, has informed me that Archbishop Whately worked at this, and went so far as to produce what he considered might be used as an universal coin, but it was so spoilt in the making that he gave the matter up. When the world comes to one intermediary substance as its measure of value and means of payment, and the subject of money is generally understood, no one will be perplexed by different monetary signs for it. Different names for different weights may continue, the thing signified being universally the same substance. The abolition of monetary signs and the use of one weight measure would be the true volapuk of money. But at present the world has seven different intermediaries constituting prices, and rates of exchange of the intermediaries, based on 24 different weights of pure gold and pure silver. It is absolutely unnecessary to add a 25th weight. All that is requisite is to obtain a knowledge of that which we possess, and to effect this the writer does not

hesitate to reiterate his views till they are taken up, and taught with geography as children can comprehend them.

Will the reader seriously reflect that if the whole world had but one scientific automatic monetary system, if it threw off monetary signs and used the same weight table, there would be but two factors in prices and exchanges of intermediaries. I. **Weight.**—Comparative prices thus indicated would be discovered at a glance, and so would comparative rates of exchange. II. **Deviation from par** in the exchange of the intermediary, a percentage premium or discount. But from the universal use of one substance would flow that which is of incalculably greater importance in the conduct of international interchanges upon the terms and conditions of barter. Under present conditions this desideratum cannot be attained. The constantly varying ratios between five vastly diverse intermediaries precludes it, and effects serious, even threatening destructive, injuries to industrial enterprises through the use of these diverse intermediaries.

TABLE III.

VALUATION OF FOREIGN COINS OCTOBER 1ST, 1896, BY THE MINT AUTHORITIES OF THE UNITED STATES, N.A. THE RATIO OF SILVER TO 1 OF GOLD WAS IN JANUARY, 1896, 30'455; IN APRIL, 1896, 30'332; JULY, 1896, 30'688; AND IN OCTOBER, 30'518. COL. I.—NAME OF COUNTRY. COL. II.—THE STANDARD POSSESSED OR AIMED AT WITH THE PRESENT CURRENCY. I.P. DENOTES INCONVERTIBLE PAPER. A. DENOTES A CURRENCY CONSISTING OF SILVER WITH A COUNTER CHARGE. COL. III.—NAME OF CHIEF MONEY OF ACCOUNT. COL. IV.—U.S.A., MONETARY SIGN IN CENTS FOR A WEIGHT OF PURE GOLD. COL. V.—THE WEIGHT OF GOLD INDICATED BY THE MONETARY SIGNS IN COL. IV., AND THE WEIGHT OF SILVER INDICATED BY THE MONETARY SIGNS IN COL. IV. AT THE RATIO OF 30'518 PARTS OF SILVER TO 1 PART OF GOLD. G. FOR GOLD. S. FOR SILVER.

OCTOBER 1ST, 1896. RATIO OF SILVER TO 1 OF GOLD 30'518.

Col. I. Country.	Col. II. Standard present Currency.	Col. III. Monetary Unit or Chief Money of Account.	Col. IV. U.S.A. Monetary sign for Weight. c. cents.	Col. V. Weight.
I. Argentina...	G. I.P.	Peso	96'5 c.	22'40 G.
II. Austria-Hungary	G. I.P.	Crown	20'3 "	4'70 "
III. Belgium ...	G.	Franc	19'3 "	4'48 "
IV. Bolivia ...	S.	Boliviano	49' "	347'22 S.
V. Brazil...	G. I.P.	Milreis	54'6 "	12'68 G.
VI. Costa Rica ...	S.	Peso		
VII. Guatemala ...	"	"		
VIII. Honduras...	"	"		
IX. Nicaragua ...	"	"	49' "	347'22 S.
X. Salvador ...	"	"		
XI. Chile ...	G.	"	36'5 "	7'47 G.
XII. China :—				
Amoy ...	S.	Tael	79'3 "	561'93 S.
Canton ...	"	"	79' "	559'79 "
Chefoo ...	"	"	75'8 "	537'14 "
Chinkiang ...	"	"	77'4 "	548'47 "
Fuchan ...	"	"	73'3 "	519'42 "
Haikwan ...	"	"	80'6 "	571'14 "
Hankow ...	"	"	74'2 "	525'79 "
Hongkong ...	"	"	53'2 "	376'99 "
Niuchwang ...	"	"	74'3 "	526'50 "
Ningpo ...	"	"	76'2 "	539'95 "
Shanghai ...	"	"	72'4 "	513'04 "

Col. I. Country.	Col. II. Standard present Currency.	Col. III. Monetary Unit of Chief Money of Account.	Col. IV. U.S.A. Monetary sign for Weight, c. cents.	Col. V. Weight.
Swatow	S.	Tael	73'2 c.	518'71 S.
Takao	"	"	79'8 "	565'47 "
Tientsin	"	"	76'8 "	544'23 "
XIII. Columbia	"	Peso	49' "	347'22 "
XIV. Cuba	G. I.P.	"	92'6 "	21'50 G.
XV. Denmark	G.	Crown	26'8 "	6'22 "
XVI. Ecuador	S.	Sucre	49' "	347'22 S.
XVII. Egypt	G.	Pound	494'3 "	114'77 G.
XVIII. Finland	"	Mark	19'3 "	4'48 "
XIX. France	"	Franc	19'3 "	4'48 "
XX. German Empire	"	Mark	23'8 "	5'53 "
XXI. Great Britain	"	Pound	486'65 "	113'00 "
XXII. Greece	G. I.P.	Drachma	19'3 "	4'48 "
XXIII. Haiti	S.	Gourde	96'5 "	683'81 S.
XXIV. British India	S. A.	Rupee	23'3 "	165'1 "
XXV. Italy	G. I.P.	Lira	19'3 "	4'48 G.
XXVI. Japan... ..	S.	Yen { G. S.	99'7 "	23'15 "
XXVII. Liberia	G.	Dollar	52'8 "	374'15 S.
XXVIII. Mexico	S.	Peso dollar	100' "	23'22 G.
XXIX. Netherlands	G.	Florin	53'2 "	376'98 S.
XXX. Newfoundland... ..	"	Dollar	40'2 "	9'33 G.
XXXI. Norway	"	Crown	101'4 "	23'54 "
XXXII. Persia	"	Kran	26'8 "	6'22 "
XXXIII. Peru	S. I.P.	Sol	9' "	63'77 "
XXXIV. Portugal	G. I.P.	Milreis	49' "	347'22 S.
XXXV. Russia	S. I.P.	Rouble { G. S.	108' "	25'08 G.
XXXVI. Spain... ..	G. I.P.	Peseta	77'2 "	17'91 "
XXXVII. Sweden	G.	Crown	39'2 "	277'77 S.
XXXVIII. Switzerland	"	Franc	19'3 "	4'48 G.
XXXIX. Tripoli	S.	Mahbub	26'8 "	6'22 "
XL. Turkey	G.	Piastre	19'3 "	4'48 "
XLI. Venezuela... ..	"	Bolivar	44'2 "	313'20 S.
			4'4 "	1'02 G.
			19'3 "	4'48 "

The Japan *Weekly Mail* of December 2nd, 1896, published the following Japanese valuation of foreign money for the purpose of calculating the values of imports, said valuation to be in force until March 31st, 1897.



TABLE IV.

COL. I.—NAMES OF COUNTIES. COL. II.—NAMES OF CHIEF MONEYS OF ACCOUNT. COL. III.—JAPANESE MONETARY SIGNS IN SENS FOR WEIGHT OF PURE SILVER AT MINT ISSUE WEIGHT OF THE YEN. COL. IV.—WEIGHT OF GOLD, G., OR SILVER, S., INDICATED BY MONETARY SIGNS IN COL. III. COL. V.—WEIGHT OF GOLD OR SILVER INDICATED BY THE MONEYS OF ACCOUNT GIVEN IN COL. II. COL. VI.—RATIO OF SILVER TO 1 OF GOLD. T. TROY GRAINS.

Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.	Col. VI.
I. Austria-Hungary *	Krone	39'5 Sens	147'893 T.S.	4'7049375 T.G.	31'433
II. Belgium ...	Franc	37'6 "	140'780 "	4'480359 "	31'419
III. British India *	Rupee	57'1 "	213'785 "	165' T.S.	27' % pm. on Silver
IV. Denmark ...	Crown	52'2 "	195'439 "	6'222721 T.G.	31'407
V. France ...	Franc	37'6 "	140'780 "	4'480359 "	31'419
VI. Germany ...	Mark	46'4 "	173'723 "	5'531340 "	31'407
VII. Great Britain ...	Pound	947' "	3543'375 "	113'001605 "	31'598
VIII. Italy *	Lira	37'6 "	140'780 "	4'480359 "	31'419
IX. Netherlands ...	Guilder	78'4 "	293'534 "	9'333485 "	31'449
X. Norway ...	Crown	52'2 "	195'439 "	6'222721 "	31'407
XI. Portugal *	Milreis	210'3 "	787'375 "	25'088524 "	31'383
XII. Spain *	Peseta	37'6 "	140'780 "	4'480359 "	31'419
XIII. Sweden ...	Crown	52'2 "	195'439 "	6'222721 "	31'407
XIV. Switzerland ...	Franc	37'6 "	140'780 "	4'480359 "	31'419
XV. Turkey ...	Piastre	8'6 "	32'198 "	1'0207958 "	31'542
XVI. United States, N.A.	Dollar	195'6 "	732'337 "	23'22 "	31'538

The currencies of countries marked * either have no standard or use as their intermediary inconvertible paper at the present time.

These two tables, amplified by the writer from the information contained in Col. IV. of the American and Col. III. of the Japanese returns, claim the studious attention of economists, statesmen, legislators, and every one who desires to know the mechanism of the interchanges of things between individual men and communities of men. Col. IV. of the American and Col. III. of the Japanese are furnished for different purposes, the first for the setting out of the gold equivalent in the States for the gold coins and moneys of account of other countries and the gold price of silver coins at the ratio of 30'518 parts of silver to 1 part of gold; the second, the values of the intermediaries of other countries, for the purpose of converting the invoices from such countries into the standard money of Japan. Particular attention is drawn to the British Indian rupee in the Japan table. It is taken at 27 per cent. premium upon the weight of silver in the

rupee, that being the value conferred upon it in international transactions by the legislative enactment of the British Indian Government. British India has no standard. Other countries have or definitely aim at having a weight of gold or a weight of silver, long since determined, as their standard, but at present have as their international intermediary inconvertible paper. This paper price of gold or silver may be at a small percentage price on the weight of the metal, or it may range from 200 to 400 per cent. or more than par. Take, for instance, the Japanese price for the present Argentine inconvertible paper at 31'407 parts of silver to 1 part of gold, say the paper premium on gold is 210 per cent. Silver for gold in the peso at this ratio in Japan would be expressed in 53'2 sens; the sum is 16'712922 (T. VII. of "Sailors' and Travellers' Guide") \div by ratio 31'407 = 53'2 sens. The gold being at 210 per cent. premium in the paper in Argentina, the discount equivalent to the premium must be found and deducted from 53'2 sens $\frac{210 \times 100}{310} = 67.8$ per cent. discount: $53.2 - 67.8 = 17.1$ sens. In the conversion of an Argentine invoice in Japan into the money of that country, is it right to assume that the rate for the Argentine inconvertible paper would be taken at 17'1 sens for a paper peso? The American quotations being for coins, the market value of the gold or the silver would be commanded for the purpose stated in that country. There is a large number of countries both in Europe and in Central and South America in which the international intermediary consists of inconvertible paper. For such intermediaries it would appear that the manner of dealing with them should be the same as the British Indian rupee is dealt with by the Japanese, only by a percentage premium instead of discount.

CHAPTER IV.

Instruction for Teachers of Children and Sailors, &c.—Nine factors—Seven monetary and currency intermediaries—Table of weights of pure gold and pure silver in the world's thirty past and present chief moneys of account—Thirty monetary signs for one troy grain of pure metal—Thirty constants for determining ratios between the metals—Directions for ascertaining the closely approximate exchange value of all coins everywhere—Twenty concrete cases of the interchanges of five monetary and currency intermediaries—Steps in instruction.

THERE is every reason why this little island, "a nation of shopkeepers," should show the world the example of turning out its youths from the schools, at which even the poorest are instructed, with the knowledge of the mechanism of the exchanges of things, a masterly skill in bullion and coin, and a practical acquaintance with the interchanges of the seven monetary and currency intermediaries at present in use in the world. This latter branch of the subject is indispensable to the sailor, soldier, and traveller if he is determined to approach the money and currency dealer with the following assertion and question: "I know within a small percentage charge how much this which I am offering to you for exchange is worth in your money. What sum do you offer me for it?" This assertion must be backed by knowledge acquired through or expressed in grains or decigrams of pure gold and pure silver.

For the use of teachers of youth, sailors, soldiers, and travellers, this chapter will deal with the factors used in connection with prices and the foreign and colonial exchanges of the world's present intermediaries. It will also furnish concrete cases of exchanges of intermediaries in the form of coins and notes between each of the monetary or currency systems and the six other monetary and currency systems.

The factors are—

I. Mint issue weight of pure gold in the world's chief standard gold moneys of account indicated by monetary signs and by signs for the tokens for money such as a shilling, a cent, &c.

II. Mint issue weight of pure silver in the world's chief standard silver moneys of account indicated by monetary signs and by signs for the tokens for money such as a sen, a centesimo, an anna.

III. Norman's unit of weight system, described page 31.

IV. The monetary signs indicating the fixed pars of exchange between gold monetary systems, or, in other words, different monetary signs used in different countries for the same weight of pure gold; such as one sovereign in Britain indicating the same weight of pure gold as francs 25.22'15 centimes in France.

V. The monetary signs indicating the fixed pars of exchange between silver monetary systems, or, in other words, different monetary signs used in different countries for the same weight of pure silver; as one tael in Shanghai indicating the same weight of pure silver as one peso thirty-six centesimos in Mexico.

VI. Fluctuating ratios between gold and silver. How to find and use them.

VII. Fixed pars of exchange between gold and silver at the ratio of one part of gold to one part of silver. To find the par of exchange between a chief gold money of account and a chief silver money of account; the ratio of the day applied as a divisor to the fixed par gives the par of the day.

VIII. Fixed pars of exchange between silver and gold at the ratio of one part of silver to one part of gold. To find the par of exchange of the day between a chief silver money of account and chief gold money of account; the ratio of the day applied as a multiplier of the fixed par gives the par of the day.

These pars of exchange resulting from the altered ratio of the day between the two metals the writer distinguishes

from *fixed* pars by calling them *absolute* pars of exchange. An absolute par of exchange is a monetary sign indicating a weight of gold for an equivalent weight of silver at the ratio of the day. It is also a monetary sign indicating a weight of silver for an equivalent weight of gold at the ratio of the day. The limits to the fluctuation of the exchanges of intermediaries consisting of effective gold and effective silver intermediaries is what is termed *metal points*. The meaning of this is that beyond a certain rate it is cheaper to collect the standard coin or present notes at institutions where they are payable on demand and obtain in exchange either coin or bullion and to ship the metal than to purchase a bill of exchange. This bill would be in the terms of one or other of the four following systems : pure gold, pure silver, gold-cum-coinage charge, or silver-cum-coinage charge. It will be seen that there is no such limit to the fluctuation of the exchanges of silver-cum-counter charge, inconvertible paper based on gold, and inconvertible paper based on silver intermediaries.

IX. The weights by which gold and silver are sold.

X. Percentage deviations from par. This deviation from par consisting of a greater or less weight of metal or more or less of the other intermediaries, are due to coinage charges, duties, charges on the transmission of metal, and where their services are required for commission to dealers in money and currency.

The vastly important instruments used in facilitating the interchanges of things are, ^aautomatic pure gold, ^bautomatic pure silver, ^cgold-cum-coinage charge, ^dsilver-cum-coinage charge, ^esilver-cum-counter charge, ^finconvertible paper based on gold, ^ginconvertible paper based upon silver. These factors constitute the world's prices and the world's rates of exchange of these seven intermediaries.

TABLE V.

Col. I. Name of chief country using or to use the monetary system. II. Monetary signs for the world's present and prospective chief moneys of account. III. Weights of pure gold and pure silver in troy grains to the 2nd and 3rd decimal point indicated by the monetary signs in Col. II. IV. Monetary sign for one grain of pure metal. V. Constant for determining the ratio of the day between gold and silver on the market price of the day. ^a Attached denotes that the currency at present consists of inconvertible paper. ^b Attached denotes that the currency for international purposes consists of a fictitious value imparted to it by legislation. ^c Attached denotes prospective chief moneys of account. * Denotes silver monetary systems.

GOLD.

Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.
I. Egypt ...	Pound ...	114'798	8'7124 ochs ...	498' 33 piastres
	Piastre 100th ...	1'148		
	Ochs 1000th ...	1'14		
II. British Isles ...	Pound ...	113'002	2'123 pence ...	934'5 pence
	Shilling 20th ...	5'65		
	Penny 240th ...	471		
III. Turkey ...	Pound ...	102'08	39'184 paras ...	4841'62 piastres
	Piastre 100th ...	1'02		
	Para 4000th ...	0255		
IV. Portugal ^a ...	Milreis ...	25'088	39'858 reis ...	615'116 milreis
	10 reis 100th ...	250		
	Reis 1000th ...	025		
V. Uruguay ^a ...	Peso ...	24'015	4'164 centesimos	642'612 pesos
	Centesimo 100th	240		
VI. United States, N.A.	Dollar ...	23'22	4'306 cents ...	2067'183 cents
	Cent 100th ...	232		
VII. Argentina ^a ...	Peso ...	22'402	4'464 centesimos	688'893 centesimos
	Centesimo 100th	224		
VIII. Brazil ^a ...	Milreis ...	12'682	78'852 reis ...	1216'87 milreis
	10 reis 100th ...	126		
	Reis 1000th ...	0126		
IX. Russia ^a ...	Rouble, old ...	17'92	5'580 copecks ...	367'4056 copecks
	Rouble ...	11'946 ^b	8'369 ,,	551'074 ,,
	Copeck 100th ...	119		
X. Japan ^c ...	Yen ...	11'574 ^c	8'676 sens ...	1000 yens
	Sen 100th ...	115		
XI. Holland ...	Guilder ...	9'333	10'714 cents ...	1653'44 guilders
	Cent 100th ...	0933		
XII. Chili ^c ...	Condor ...	8'475 ^c	11'775 ...	1820'90 condors
	100th ...	0847		
XIII. British India ^c ...	Rupee ...	7'533 ^c	2'123 annas ...	382'29 annas
	Anna 16th ...	4708		
	4 pice 64th ...	1177		
XIV. Scandinavia ...	Crown ...	6'222	16'07 ores ...	1240 crowns
	Ore 100th ...	0622		
XV. Germany ...	Mark ...	5'531	18'079 pfennigs	1395 marks
	Pfennigs 100th ...	0531		
XVI. Austria-Hungary ^a ...	Crown ...	4'705	21'254 ...	1640 crowns
	100th ...	0470		
XVII. France ...	Franc ...	4'480	22'319 centimes	3444'4444 francs
	Centime 100th ...	0448		

SILVER.

Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.
I. Shanghai* ...	Tael ...	516'405	1'936 cash ...	1'11296 tael
	Cash 1000th ...	'516		
II. Mexico* ...	Peso ...	377'168	'2651 centesimos	40'911 pesos
	Centesimo 100th ...	3'771		
III. Japan ...	Yen ...	374'4	'2671 sen ...	15'456 yens
	Sen 100th ...	3'744		
IV. Java* ...	2½ Guilder ...	364'589	'2743 cent ...	10'417 rixdollars, or 2½ guilderscoin
	Cent 100th ...	3'646		
V. Philippines* ...	Dollar ...	360'561	'2773 cent ...	42'8 dollars
	Cent 100th ...	3'605		
VI. Columbia, U.S.A.*	Sol ...	347'227	'288 cent ...	44'444 sols
	Centesimo 100th ...	3'472		
VII. Bolivia* ...	Boliviano ...	312'505	'3203 cent ...	49'382 Bolivianos
	Cent 100th ...	3'125		
VIII. Russia ...	Rouble ...	277'722	'36007 copeck ...	23'704 copecks
	Copeck 100th ...	2'777		
IX. Siam* ...	Tical ...	226'301	'1414 phainung	1'042 ticals
	Phainung 32nd ...	7'072		
X. Austria ...	Florin ...	171'470	'5832 kreutzer ...	45 florins
	Kreutzer 100th ...	1'714		
XI. British India ...	Rupce ...	165'	1'16367 ...	1'0909 rupee
	Anna 16th ...	10'312		
	Pice 192nd ...	'859		
XII. Persia* ...	Kran ...	63'936	'1414 shahis ...	1'111 kran
	Shahis 20th ...	3'196		

The world's present seven currencies—These seven currencies are all based upon weights of pure gold or weights of pure silver. They are used by the inhabitants of continents and islands wherever intercolonial and international trade is practised. Two of them, gold-cum-coinage charge and silver-cum-coinage charge, operate so as to widen the margin of the fluctuations of the exchanges of the intermediaries so denominated with other of the five intermediaries and between themselves. In the case of gold intermediaries the coinage charge is so small as to have very little perceptible effect upon the exchange of such intermediaries with the other intermediaries; but in the case of silver-cum-coinage charge it sometimes operates to the extent of 2 per cent. Take the case of the late British Indian rupee, when the mints were open to the unlimited reception of silver from the public and there was a coinage charge of $2\frac{1}{2}$ per cent. Under such conditions and a demand for silver for shipment to British India in London, a sailor having five rupees to exchange should get something near 2 per cent. more than the equivalent gold for the silver

at the ratio of the day, since the buyer of the rupees would save the $2\frac{1}{8}$ mintage charge for coinage of silver into rupees. A silver-cum-counter charge currency system exists now in British India. The term counter is used to denote that by legislation the Government has conferred a fictitious value upon silver. At the present time a rupee, which is still the chief money of account in British India, and contains an issue from the mint 165 troy grains of pure silver, does the work in intercolonial and international interchanges of intermediaries of 239 grains of pure silver, or about 30 per cent. more than silver is worth in the markets of the world. In the Dutch possessions of the East, Java, &c., the intermediary the people pay for, supplied to them by Holland, is a rixdollar, or a $2\frac{1}{2}$ guilder piece, containing on issue from the mint 364.589 troy grains of pure silver. This coin has a forced circulation in Java, &c., at the ratio of 15.6 parts of silver to 1 part of gold, and does the work of about 730 troy grains of pure silver in the internal interchanges of those islands. The worst of all intermediaries is inconvertible paper, whether it be based on gold or upon silver, because of the fluctuations in its purchasing power for local purposes and as an intermediary in the foreign and colonial exchanges of intermediaries. This intermediary, whilst bearing upon the face of it a promise to pay a definite weight of gold or silver, has often so far deviated from the fulfilment of the promise that from 5 to 400 per cent. more of these promises have to be paid for the weight of metal indicated on the face of the promise. Besides this, the violent fluctuations of the value of this class of intermediary is an impediment to international and intercolonial interchanges of things, and effectually prevents such exchanges being carried out, as they should be carried out, upon the terms of barter.

The daily ratio between gold and silver.—This most important factor should occupy a prominent place in the world's daily newspapers which profess to give ordinary commercial information. It is easily obtained in each country by the application of the price of silver in gold

standard countries and the price of gold in silver standard countries to a constant attached to each present and prospective metal monetary system. As an instance of how a constant is found, take the constant for the British Isles. One of the monetary signs for a sovereign is 240 pence. The mint issue weight of a sovereign is 113'001605 troy grains of pure gold. Silver is sold in the British Isles per troy ounce, or 444 troy grains of pure silver. By treating silver as gold the constant 942'9955 is obtained. The sum is

$$\frac{240 \times 444}{113'001605} = 942'9955 \text{ pence.}$$

The application of the gold price of silver of the day to this constant as a divisor gives the ratio of silver to 1 of gold. Say the price is $26\frac{1}{8}$ pence per ounce. On page 171 will be found a table of conversion of fractions into decimals, and against $\frac{1}{8}$ the decimal '8125 will be found: 942'995, the constant, divided by 26'8125, gives the ratio 35'17 parts of silver to 1 of gold.

Deviations from Par of Exchange.—The deviations from metal pars of exchange are caused by legislative enactments, which confer a fictitious value upon one or other or both of the precious metals; the use of an inconvertible paper currency based either upon gold or upon silver; the use of a silver-cum-counter-charge currency; the imposition of coinage charges upon the metal forming the standard measure of value; the transmission charges upon the standard substance; interest for the use of money; and a commission for the dealer in money and currency, as remuneration for his services, should they be employed. It should be observed that the silver tokens for the standard substance used in gold standard countries, and the gold tokens used in silver standard countries, are generally saleable at rates in proportion to the weight of standard metal for which they are tokens. A shilling in France would sell as the 20th part of a pound, and not at the French gold price of silver; and the silver franc would sell in Britain as a gold franc, and not at the British price of silver.

Before conducting the reader through the practical exchanges of the seven intermediaries in such sums as sailors

and travellers would use, considerable enlightenment may be found by assuming that every empire, kingdom, republic, and island of the world used but one intermediary—say automatic pure gold ; that this gold is divested of monetary signs, and that prices and rates of exchange of the one intermediary and measure of value are given in weights ; that the whole world has one weight table for monetary purposes. Under such conditions the factors used in the world's prices and rates of exchange of the intermediary would be only two : I. Weight ; II. Deviation from weight more or less in the shape of discount or premium for transmission of metal charges and the money and bill dealers' commission. It is clear that if this were so, the rudiments of money having been acquired by children, an intelligent knowledge of the foreign and colonial exchanges of an intermediary could be gained in one lesson. But if weights cannot be made to take the place of monetary signs, and the existing and projected chief moneys of account of the world are continued in one metal, the additional factor would be weights of the chief moneys of account, and a good deal more for children to learn ; but the simplicity of the use of one metal only would be preserved.

The metric measure of weight of gold and silver is used by far the largest number of the peoples of the world—all Europe except Russia and Turkey ; all South America, Mexico, and Central America. Troy weight comes next : The British Empire except British India, Ceylon, Mauritius, &c., and the United States of North America.

THE FOLLOWING ARE THE BRITISH EQUIVALENTS OF METRIC
WEIGHTS IN TROY GRAINS AND BRITISH MONEY.

	Troy Grains.	British Money.
Milligram ...	01543235639	03277 of a penny.
Centigram ...	1543235639	3277 "
Decigram ...	1543235639	3277622 pence.
Gram ...	1543235639	32776220 "
Decagram ...	1543235639	1365625854 pounds (£).
Hectogram ...	1543235639	1365625854 "
Kilogram ...	1543235639	1365625854 "

In a country which possesses an effective gold monetary system in which is included a gold-cum-coinage charge

system, prices and rates of foreign and colonial exchanges and intermediaries, are gold prices and gold rates of exchange. Gold is as good as weighed out against anything bought and sold, inclusive of the intermediaries for facilitating the interchanges of things. The same in regard to silver in effective silver standard monetary systems. In a country which possesses a silver-cum-counter-charge currency, prices under certain conditions are silver prices, and rates of exchange are silver-cum-counter-charge rates for the six other descriptions of intermediaries. In countries possessing an inconvertible paper currency, whether based upon gold or upon silver, prices and rates of exchange are inconvertible paper prices and rates of exchange, and everything bought and sold is as though the currency intermediary is counted out against it, and the exchange of the intermediary for another intermediary is as good as counted out for the other intermediary.

A study of Table V. will show that of the present and projected 17 or 18 gold and 8 silver monetary systems, there are eight which have no gold weight, as well as a silver weight representing the chief money of account. These systems are: the British pound, gold; one shilling, $\frac{1}{20}$ th of pound, silver. Egyptian pound, gold; 10-piastre piece, silver. Turkish pound, gold; 20-piastre piece, silver. China tael, silver. Java rixdollar, silver. Corea, silver. Siam tical, silver. Persia kran, silver; toman, gold. The other 17 or 18 systems possess both a weight of gold and a weight of silver for the chief money of account in each. A coinage charge, should such be made, is a fixed one. On gold it is not more than 1 per cent. anywhere. On silver it ranges from 1 to 2 per cent. The three classes of intermediaries in most countries are: I. The standard substance in the shape of either gold or silver coins. II. Token coins. III. State or bank notes. It will be shown how easily these exchange calculations can be made in two ways, by weights of pure metal and by reference to tables in this book. The countries furnishing examples of these five descriptions of intermediaries are: I. British Isles, automatic pure gold.

II. China, automatic pure silver. III. British India, silver-cum-counter charge. IV. Argentina, inconvertible paper based on gold. V. Columbia, S.A., inconvertible paper based on silver. Table V., containing 16 gold monetary signs for each of the 17 of the world's chief gold moneys of account, would not be required if signs were abolished and one measure of weight were used throughout the world. A sailor who tenders a sovereign for exchange in any effective gold standard country should know that a pound means 113'0016 troy grains of pure gold, and that all the monetary signs under Great Britain indicate the same proportional weight of pure gold. Thus the pound and f.25'2215c. indicate the same weight of gold. Under Britain, the British sign for one franc is 9'515 pence. Under France, the French sign for a shilling, which is a token for the 20th part of a pound, is found by dividing f.25'2215 centimes by 20, which gives f.1'26 centimes as its equivalent. It is necessary to be on one's guard about the use of a quotation of a rate of exchange, as to the effect of the use of it whether as a divisor or a multiplier. The quotation should invariably be the money of the country for the intermediary presented for sale. Thus in France it should be francs or centimes for the intermediary, say the pound or the shilling. Thus the higher the rate the better for the seller, as the rate is used as a multiplier. When the quotation of exchange in France is given in pence for a franc, the quotation must be used as a divisor of the money to be exchanged, and the higher the rate the worse it is for the seller of the intermediary. An offer is made to exchange a franc for 10d.: the equivalent to a franc is 9½ pence. This is a difference of 5 per cent., and shows a very large percentage for the accommodation afforded.

The knowledge that the sailor, soldier, and traveller needs, is how to find with ease the equivalent in coins of one country in which he may happen to be, for any coins of another country which he may desire to exchange. If every part of continents and islands of the world possessed a scientific automatic gold monetary system, and had no other nomenclature but that which indicated one weight-table, the

subject of prices and rates of exchange of the one intermediary could be acquired by the poorest understanding. If the whole world's chief moneys of account were a decagram or 154·3235 troy grains of pure gold, with gold, silver, and bronze coins comprising a decagram and parts of the same, comparative prices could be understood at a glance, and the rate of exchange for the intermediary gold, with its tokens and promises to pay gold, would be a percentage more or less bounded by the cost of the conveyance of gold and the commission to the dealer in the exchanges of the intermediary. If the world had but one gold intermediary upon a scientific basis, as a measure of value and means of payment, and each country possessed different weight-tables and attached different monetary signs to different weights of gold and the metal tokens for gold, prices and rates of exchange lose all their mystery by throwing off the signs by the use of the unit of weight system described in this chapter. At present the world has two standard monetary metals, gold here and silver there, but both together at a fixed ratio to make one standard, nowhere.

In Table V. it will be noticed that weights are given for the tokens used for chief moneys of account in 17 gold and 8 silver monetary systems; these latter are marked with an *. The weight of gold, or silver in silver systems, indicated by these tokens, as well as the weights of the chief moneys of account, together with the ratio between the metals, are the means of determining the equivalent weights in monetary signs. For instance, quotations in Britain for other countries' chief moneys of account are given in pence. Take the Argentine peso; what is its equivalent in pence? In the table against Argentina 22·4 grains of gold will be found, and against one penny ·471 grain of gold will be found.

The sum is $\frac{22\cdot4}{\cdot471} = 47\cdot57$ pence. At the present time gold is

at a premium of 202 per cent., or 66·55 per cent. discount. This discount upon 47·57 is 31·65; this deducted from 47·57, leaves 15·92 pence as the present equivalent to the inconvertible paper peso of the Argentine Republic. Another

instance. What is the equivalent to a franc in British money? Against France 4·48 grains of gold is found. The sum is $\frac{4\cdot48}{\cdot471} = 9\cdot5$ pence. What is the U.S.A. equivalent to a franc? Against U.S.A. ·232 of a grain of gold is found; the franc is 4·48 grains of gold. The sum is $\frac{4\cdot48}{\cdot232} = 19\cdot3$ cents.

What is the U.S.A. equivalent to a shilling? This is a token for the 20th part of a pound, and sells as such, less transmission of metal charges and commission for the dealer.

Against a shilling is 5·65 grains of gold. The sum is $\frac{5\cdot65}{\cdot232} = 24\cdot35$ cents. What is the British monetary sign for a rupee at 40 per cent. premium on the silver rupee? Against the silver rupee is found 165 grains—the ratio between the metals 32·48. The sum is $\frac{165 + 40\% \div 32\cdot48}{\cdot471} = 15\cdot1$ pence. What is the British equivalent to a Columbian sol? Against Columbia 347·237 grains of silver are found. The sum is at 32·48 ratio $\frac{347\cdot23 \div 23\cdot48}{\cdot471} = 22\cdot7$ pence. At present silver is at 140 per cent. premium in Columbia: this equals 58·33 per cent. discount, and reduces the 27·7 pence to 11·54 pence per cent.

What is the Columbian equivalent for one British pound on the same terms as the last sum? It is $\frac{113 \text{ grains of gold}}{347\cdot23 \div 32\cdot48 - 58\cdot33\%} = 25\cdot34$ sols.

These instances will show how very simply equivalents in one intermediary for another can be discovered. It is with this knowledge that the sailor and the traveller should approach the dealer in monetary and currency intermediaries. The dealer must have his fair commission for the risk he runs and the accommodation he affords. These risks are great with silver-cum-counter charge, inconvertible paper based on gold, and inconvertible paper based on silver intermediaries. Should the whole world ever possess one scientific automatic gold monetary system, the fluctuation in the foreign and colonial exchanges of the one intermediary

would be limited to little more than 1 per cent. between the most distant ports.

For the forty-nine different descriptions of exchanges resulting from the use of seven monetary and currency intermediaries, see page 21.

Teachers of this subject will do well to see that the students are thoroughly at home in exchanging each of the twenty-five chief moneys of account into the twenty-four other chief moneys of account, and parts of one for parts of the twenty-four other moneys of account. Upon which may succeed the further following teaching :—

We now proceed with sailors to visit five ports whereat five of the seven present monetary and currency systems exist for the purpose of exchanging in each four other intermediaries.

I. London.—We are now in the capital of the British Empire, where the currency is automatic pure gold. A sailor has 450 *Mexican* dollars or pesos to exchange. The ratio is 32·48. The sum is $\frac{377\cdot17 \div 32\cdot48 \times 450}{113} = \text{£}46\ 4s.\ 6d.$

The divisor is the grains of gold in the pound. The dividend is the weight of silver in grains in the peso divided by the ratio, and multiplied by the number of pesos. Check this by the use of monetary signs and tables. On Table XXIII. against Mexico and under Britain the constant 801·07 will be found; this is pence at the ratio of 1 of silver to 1 of gold. Divide 801·07 by the ratio 32·48, and the result will be 24·66 pence. 450 pesos multiplied by 24·66 pence gives $\text{£}46\ 4s.\ 7d.$ Another mode by use of monetary signs and a table. On Table XXVII. under Mexico and against Britain the constant 29·959 cash is found. Multiply this by the ratio, and the result is 9·73 pesos. 450 pesos divided by 9·73 = $\text{£}46\ 4s.\ 8d.$ In future calculations we shall simply work by weight, and appeal can be made to tables to verify the same. It will be seen that the equivalent weight for weight for 450 Mexican pesos at the ratio of 32·48 parts of silver to 1 part of gold is $\text{£}46\ 4s.\ 6d.$ It is with such knowledge that the sailor should approach the money and currency dealer. There is no transaction involving price or a foreign or colonial rate of

exchange that has not for its basis either a weight of pure gold or a weight of pure silver. The commission to be paid for exchanging one intermediary for another, depends upon the demand for the intermediary which is offered for exchange. It is a great accommodation to be able to effect such exchanges. And those who afford it must obtain adequate remuneration. Gold is always in demand, and exchangeable in the trading world for any other metal, or anything else. Silver as a measure of value and an equivalent in exchange, is rapidly losing the position it held until 1873 in the history of the world, and can never again be allied with gold by legislative enactment with the view of making one permanent effective metal monetary standard under any temporary ratio between the two substances. The constantly fluctuating gold price of silver most seriously affects the exchange value of automatic pure silver, silver-cum-counter charge, and inconvertible paper based upon silver intermediaries. Considerable allowance must be made for this. The dealer in monetary and currency intermediaries with regard to this class of intermediary must operate for the rise or fall in the gold price of silver. He cannot assume that the price will remain stationary. In exchanging gold for gold, the limit to the fluctuation of the exchanges between effective gold monetary systems is the cost of conveyance of gold between ports, which is something like 1 per cent. between the most distant ports; the small per cent. or per mille coinage charge where such a charge exists, and a fair remuneration for the monetary and currency exchange dealer. In the automatic silver and the two other intermediaries in which silver forms a part, between themselves and the other intermediaries there is no such limit to the fluctuations of exchange. Let it be distinctly understood that it is only between effective gold monetary systems on the one hand, and between effective silver monetary systems on the other, that the sailor or anyone exchanging intermediaries, can present an intermediary to the exchanger, and assert that the equivalent in the intermediary in this country with this which I present is so much, and the future variation can only be so

much, what are you going to charge for commission for doing the business?

In the instances which will be given, the absolute equivalent of the intermediary offered will be stated, and the manner it is arrived at will be shown. But the future gold price of silver, and a more or less percentage of inconvertible paper for metal, must be a matter of speculation, quite apart from commission for doing the business. One dealer may take one view of the future of markets, and another another view, so that to get the best rate of exchange becomes a matter of competition between money and currency dealers on the one hand, and those who employ them on the other. Returning to the British money to be obtained for 450 Mexican dollars, besides the commission to be deducted, there are the chances of the silver market to be run, unless a simultaneous sale of the dollars can be secured by the buyer of them. Though the tael weight forms the chief money of account in Shanghai, there are various tael money weights in that country. The Shanghai tael weight and the dollar are quoted in this country as the standard currency of China. Prices and rates of exchange of intermediaries are automatic pure silver.

A sailor has 426 British Indian rupees. As an intermediary in international exchanges of things, the rupee does 40 per cent. more work than its weight of 165 troy grains of pure silver. For 300 rupees the sailor has Indian State notes of the Bombay circle, and the remainder in coins of a rupee each. The equivalent in London for the notes, the ratio being 32'48, is thus found $\frac{300 \times 165 + 40\%}{113} \div 32'48 =$

£18 17s. 8d. British India imposes a duty of 5 per cent. on the importation of silver. This is the sum to find equivalent for 126 rupees; $\frac{126 \times 165 + 40\%}{113 + 5\%} =$ £7 11s. A

commission for effecting the exchange has to be deducted. By the closure of the British Indian Mints against the reception of silver from the public in June, 1893, the standard silver monetary system was destroyed. Prices in the country

are still silver prices, and the notes of the British Indian currency circles are as yet convertible into silver at the will of the holder of them. As an international intermediary the rupee is a silver-cum-counter charge intermediary.

A sailor has 325 Argentine pesos in inconvertible State or other equally good credit paper. To find the equivalent to sterling the sum is: since the premium in paper for gold is

202% equal to 66.55% discount, thus $\frac{202 \times 100}{302} = 66.55\%$ —

$\frac{325 \times 22.4 - 66.55\%}{113} = \text{£}21\ 18s. 7d.$ Besides commission, there

is the risk that the premium on the 22.4 grains of gold in the peso would be more when the credit instrument should be returned to Argentina.

A sailor has 475 Columbian sols in State notes or other equally good credit instrument. The silver money of account is 347.23 troy grains of pure silver, which is at a premium of 140 per cent. What is the equivalent for 475 sols? The sum is $\frac{347.23 - 58.33\% \div 32.48 \times 475}{113} = \text{£}18\ 14s. 5d.$

The risk of disposing of the paper and the commission for the accommodation must be deducted.

II. Calcutta.—We are now in the capital of British India, where there is no standard. Silver rupees are current, and notes of the British India currency circles are convertible at the will of the holder into rupees within these circles. It is nearly four years since a gold standard for British India was projected. The fictitious value of the silver rupee may go much higher before the object can be accomplished. By each rise an additional handicap is imposed on such portions of the export trade as countries possessed of effective silver currencies can compete with in supplying effective gold standard countries. A sailor has *British* money £42 10s. to exchange. £30 are in Bank of England notes or some other credit instrument equally secure of payment in England; the rest in gold, and 10s. in silver. What is the equivalent for this? The 165 grains of silver in the rupee do the work as an intermediary of 40 per cent. more or 231

grains of silver. The sum is $\frac{42 \times 113}{231 \div 32.48} = 667.50$ rupees. As a remittance to England the credit instrument mentioned should be worth more than the gold, because transmission charges on the metal would be saved. To find the equivalent to 10s., it will be noticed in making the last sum that the 231 grains of silver are equivalent to 7.11 grains of gold. There is an import duty of 5 per cent. on silver in British India. Ten shillings is the monetary sign for 56.5 troy grains of gold. The sum therefore is $\frac{56.5}{7.11 + 5\%} = 7.9$ rupees.

Commission for accommodation must be deducted.

A sailor from China has 785 Mexican dollars of 377.17 grains of silver each, the same premium on the rupee: the sum to find the equivalent is $\frac{785 \times 377.17}{231 + 5\%} = 1281.7$ rupees.

Commission for making the exchange must be deducted.

A sailor has 260 Argentine paper pesos to exchange at the same premium upon the peso and the rupee. What is the equivalent? The sum is $\frac{22.4 - 66.55\% \times 32.48 \times 260}{165 + 40\%} = 274$ rupees. If the pesos were gold, then the sum would be $\frac{260 \times 22.4 \times 32.48}{165 + 40\%} = 821.92$ rupees. A commission for accommodation must be deducted.

A sailor has State bank notes or equally good credit paper for 385 Columbian sols: the sol contains 347.23 grains of pure silver, and its price in inconvertible paper is 140 per cent. more. Take the same premium on the rupee. What is the equivalent in rupees? The sum is $\frac{347.23 - 58.33\% \times 385}{165 + 40\%} = 240.71$ sols. 140% premium equals 58.33% sols discount.

III. **Shanghai.**—We are now in one of the chief ports of China. The money of account is a tael weight of 516.4 grains of pure silver. The monetary sign is what it should be for the whole world. *Weight:* China in this respect has followed the Abrahamic principle, and the people have never had to

muddle their brains with a sign for the thing signified. The currency is automatic silver. Prices on the seaboard and the rates of exchange of intermediaries are automatic silver.

A sailor has British £36 2s. 6d. ; what is the equivalent in Shanghai money at a ratio of 32·48? The sum is $\frac{36 \cdot 125 \times 113}{516 \cdot 4 \div 32 \cdot 48} = 256 \cdot 670$ taels. A commission for the accommodation must be deducted. The silver coins of the East are current exchange intermediaries throughout the East, the weights of which are to be learned in Table V. of this chapter. The British dollar is of the same weight as the Japanese silver yen, 374·4 troy grains of pure silver. The scientific, and therefore the proper quotation is always the intermediary of the country for the intermediary presented for exchange. You will notice that in Russia it is roubles for a pound sterling, or for £10 sterling. In London the quotation is always pence for a rouble. The quotation in Shanghai, between that port and London, would be pence for the tael. To find the answer for this quotation the sum presented for exchange must be reduced to pence, and the quoted rate used as a divisor of the amount to give the answer in taels : used in this manner, the higher the rate, the worse for the party presenting the sterling for exchange. Paper promises to pay standard metal in the shape of standard coins vary in quality. State notes of a country possessing good credit and an effective metal monetary system command a better price than the metal for which it is only an engagement to pay, because the paper can be transmitted at a less cost than the metal can be sent for. Besides State and bank notes, there are many kinds of credit instruments, among them seamen's pay notes, which do not equal in quality State and bank notes, though as a rule they do the work equally well, even as the gold or silver promised on the face of them. All these instruments are most valuable and efficacious, and without them the world's business could not be carried out upon the present scale of it. At the same time the rate of exchange must mainly

depend upon the quality of the intermediary presented for exchange or sale.

One of the sailors has 867 *British Indian* rupees. The 165 grains of silver in the rupee has had conferred upon it by legislative enactment a sliding scale percentage addition of purchasing power. Just now it is 40 per cent. In other words, that which in the world at large does the work of 165 grains of silver, does the work of 231 grains of silver as a British Indian currency intermediary. There is a charge of 5 per cent. on imported silver at all the British Indian ports. Under these conditions, what is the equivalent to 867 rupees in British Indian State notes? The sum is $\frac{231 \times 867}{516.4} = 387.83$ taels. Should this sum be in coins of a rupee each, then besides shipping charges to India, and the 5 per cent. import charge, there would be commission as for exchange of notes to be deducted. These deductions for coin might be something like 7 per cent. This on 387.83 leaves taels 360.83. A better price of the rupees for use in China might be commanded.

A sailor has State paper for 180 Argentine pesos, each of 22.4 troy grains of pure gold: each peso is at 202 per cent. premium in the present inconvertible paper of the Argentine Republic. What is the equivalent for this amount of paper pesos at the ratio of 32.48?—the equivalent discount to 202 per cent. premium being 66.55. The sum is $\frac{22.4 - 66.55 \times 180}{516.4 \div 32.48} = 84.16$ taels. Were they gold pesos the sum would be $\frac{22.4 \times 180}{516.4 \div 32.48} = 253.53$ taels. Commission for the accommodation must be deducted. Prices and rates of exchange of intermediaries in this system are inconvertible paper prices based on gold.

A sailor has State notes or equally good credit instrument in the shape of bank notes or seamen's pay notes for 350 *Columbian* sols: the sol consists of 347.23 grains of pure silver, and at present this weight of silver commands a premium of 140 per cent., which is equal to a discount of

58·33 per cent. What is the equivalent in taels? The sum is $\frac{347\cdot23 - 58\cdot33\% \times 350}{516\cdot4} = 98\cdot07$ taels. If the sol had to be

exchanged, the sum is $\frac{347\cdot23 \times 350}{516\cdot4} = 237\cdot28$ taels. A commission must be deducted.

IV. *Buenos Ayres*.—We are now in the capital of the Argentine Republic, where the chief money of account is a gold peso containing 22·4 troy grains of pure gold. At present the currency is inconvertible paper, 302 paper pesos having to be paid for 100 gold pesos. This 202 per cent. premium is equal to 66·55 discount; the ratio between the metals is 32·48. Prices and the rates of exchange of intermediaries are inconvertible paper prices and rates of exchange, based on gold.

A sailor has *British* money for £33, £30 in pay notes and £13 in gold. What is the equivalent in Argentine inconvertible notes? The sum is $\frac{33 \times 113}{22\cdot4 - 66\cdot55\%} = 497\cdot86$ pesos.

Gold is most likely to command the best rate for the seller. Credit instruments which are nearly as good as a Bank of England note, should differ by a small percentage only against the seller. Commission charge must be allowed for in the estimate. But the equivalent for the day, upon the terms given in the currency of Argentina for British gold £33, is 497·86 pesos.

A sailor has 685 *British Indian* rupees: the rupee is at 40 per cent. premium, and the peso is at 66·55 per cent. discount; the ratio between the metals 32·48; what is the equivalent in pesos? The sum is $\frac{685 + 40\% \times 165}{22\cdot4 - 66\cdot55 \times 32\cdot48} = 650\cdot04$ pesos. If there is no sale of the rupees at the ratio of the day, and the best thing to be done with them is to ship them to British India, there would be the Indian duty of 5 per cent. upon them and a charge for conveyance, besides commission for the accommodation. A good credit instrument is better than silver.

A sailor hailing from *China* has 356 Mexican dollars or

pesos, of 377·17 troy grains of silver each; discount on the Argentine peso equal to 202 per cent. premium is 66·55 per cent. What is the equivalent in pesos? The sum is

$$\frac{356 \times 377 \cdot 17}{22 \cdot 4 - 66 \cdot 55 \times 32 \cdot 48} = 551 \cdot 90 \text{ pesos.}$$
 If the best use to be made of the dollars is either shipment to the East or to Mexico, transmission charges must be deducted besides commission on the sale.

A sailor has *Columbian* State notes for 426 sols: the sol is 347·23 troy grains of pure silver, which is at 140 per cent. premium in inconvertible paper, the ratio and the discount on the peso as in the last sum. What is the equivalent in pesos? 140 per cent. premium is equal to 58·33 per cent. discount. The sum is
$$\frac{426 - 58 \cdot 33 \times 347 \cdot 23}{22 \cdot 4 - 66 \cdot 55 \times 32 \cdot 48} = 294 \cdot 50 \text{ pesos.}$$

There should not be a great difference between the sale of the metal and a first-class credit instrument.

V. *Cartagena*.—We now proceed to the chief part of the United States of Columbia, where we find the standard currency is silver. The chief money of account, the sol, contains on issue from the mint five times the weight of the silver franc, 347·23 troy grains of pure silver. At present it requires 240 paper sols to procure 100 silver. Prices and rates of exchange of intermediaries are therefore inconvertible paper prices based upon silver. A sailor has *British* money £25. The ratio between the metals being 32·48, what is the equivalent in Columbian currency to £25? The sum is
$$\frac{25 \times 113}{347 \cdot 23 - 58 \cdot 33 \% \div 32 \cdot 48} = 634 \cdot 26 \text{ sols: ans.}$$
 The difference would not be great between the amount to be obtained for gold and a first-class credit instrument. Allowance for commission must be made.

A sailor has 280 Mexican dollars. The discount on the local inconvertible paper is 58·33%. What is the equivalent in exchange? The sum is
$$\frac{377 \cdot 17 \times 280}{347 \cdot 23 - 58 \cdot 33 \%} = 730 \text{ sols.}$$

Assume that there is a mint charge for coinage and delay in getting Columbian stamp changed for the Mexican stamp

on the silver, together 1 and $\frac{1}{2}$ per cent., this sum must be deducted from the 730 sols. Allowance must be made for commission in either case.

A sailor has 435 *British Indian* rupees, which as an intermediary possess a fictitious value of 40 per cent. more than the equivalent in exchange with an effective silver standard intermediary. The local inconvertible paper currency is at a discount of 58·33 %. What is the equivalent in exchange for

435 rupees ? The sum is $\frac{165 + 40\% \times 435}{347\cdot23 - 58\cdot33\%} = 694\cdot49$ sols.

These rupees at such a high cost could not be taken for coinage anywhere, and would be of no use at anything like the price paid in British India only. Sent thither, they would incur transmission charges and the import duty of 5 per cent. British Indian silver rupees are among the worst intermediaries in the world, and must be avoided by every traveller, even as they would avoid, where possible, all inconvertible paper. British Indian State notes would be readily saleable in many parts of the East and in Europe, and would be a better instrument for sale than rupees for the same amount.

A sailor has 456 Argentine pesos in inconvertible paper: the premium on the gold peso of 22·4 grains is 202 per cent., equal to 66·55 per cent. discount; the ratio between the metals is 32·48; the premium in inconvertible paper upon the weight of the sol is 140 per cent., or 58·33 per cent. discount. What is the Columbian currency equivalent to

456 pesos ? The sum is $\frac{22\cdot4 - 66\cdot55\% \times 456}{347\cdot23 - 58\cdot33\% \div 32\cdot48} = 676\cdot27$

sols. In estimating the rate to be obtained, there is the risk of the change of discount for the buyer to consider, and the commission to be paid.

Purchase and sale of things in combination with the exchange of intermediaries.—It should be no difficult matter to one who is accustomed to instruct children to practice them in the interchanges of things between countries using the five great diverse intermediaries, namely, pure gold, pure silver, silver-cum-counter charge, inconvertible paper based on gold, and

inconvertible paper based on silver. For instance, as one method, get five bags made, one labelled British Isles, in this place a miniature bale of piece goods and counters to represent grains of gold. Another bag labelled China, in this place a miniature hank of silk and counters to represent grains of silver. Another labelled British India, in this place a miniature chest of tea and pieces of paper representing rupees. Another bag labelled Argentine Republic, with a miniature bag of wheat and paper to represent pesos based upon gold. Another bag labelled Columbia, with a miniature bag of coffee and paper, to represent sols based on silver. Taking from the commercial intelligence in the daily papers the ratios of the day existing between the five intermediaries used in these countries, and applying them to the purchase in one country and sale in another of small quantities of the five descriptions of goods mentioned, the combined working of prices and rates of exchange of the five intermediaries could be taught, and should be mastered by youths before they go out into the world.

The teacher will make himself master of Chapter VI. on the scientific method of working the foreign and colonial exchanges of the world's present seven intermediaries. We will suppose that the teacher is thoroughly practised in all that this book is intended to impart. Doubtless each will have a method of teaching the mechanism of the interchanges of things, prices and the monetary and currency exchanges of intermediaries. Perhaps the writer may be permitted to indicate the steps that he thinks it may be found expedient to take. I. Tear away monetary signs and expose the things signified. These things are simply either a weight of gold or a weight of silver as the basis of each of the seven intermediaries. This has been well done by Miss E. C. Sharland in her "Coin of the realm, what is it?" and children have demonstrated that they can understand and practise it. II. Assume that the whole world has only one substance as its measure of value and ultimate means of payment, also that the whole world has only one measure of weight, say the metric. Prices throughout the whole world

would be a more or less metric weight of gold. A rate of exchange would be a more or less metric weight of gold and the fluctuation limited to 1 per cent. on the weight exchanged. International prices for the same classes and qualities of things would be seen and measured at a glance. International and intercolonial exchanges of one intermediary would be as easy of comparison. The mind readily perceives that should this great desideratum ever be accomplished, the imputed mysteries about money, prices, and the foreign and colonial exchanges of intermediaries will have vanished like fog before a strong wind. III. The next step in instruction is to show that there is no mystery about these three things, although the world has seven monetary and currency intermediaries entailing seven different descriptions of prices, and forty-nine different descriptions of exchanges of the seven intermediaries. Pupils must become familiar with the mode of dealing with each intermediary theoretically and practically. The science of and practice with money may possibly in the distant future centre in and around metric weights of pure gold. At present it centres in 25 different weights of pure gold and pure silver, each clothed with confusing monetary signs, and five of the seven intermediaries associated with and smothered by coinage charges, counters or inconvertible paper, the creation of legislation.

Weights.—As some of the weights in the next chapter are not quite correct, it should be studied for its principles and methods. The weights in decigrams on page 7 are the bases of all the tables at the end of the book. Table I, page 26, contains the weights of nearly all the chief moneys of account in troy grains.

CHAPTER V.

Description of foreign and colonial rates of exchange—Fixed pars of exchange—Gold—Silver—Gold for silver—Silver for gold—Daily gold price of silver and silver price of gold—Fixed and absolute pars of exchange—Cambists—The fixed par of exchange between the British Isles and France by chain rule—Deviations from par—Six causes of—Concrete cases—Gold for gold—London exchange on Paris—London shipping gold—Eight modes of working the exchange—Sterling into dollars—French exchange on shipment of gold to the British Isles—British exchange on receipt of gold from France—French exchange on receipt of gold from the British Isles. Silver for silver—Exchange between Persia and Shanghai: three methods—Exchange between Shanghai and Persia: four methods—Gold for silver—Exchange between Shanghai and the British Isles: three modes of reaching it—Silver for gold—Exchange between France and India: three modes of reaching it—Weights of money the corrective of Adam Smith's highway in the air—Exchange tables—Inconvertible paper currency—Effect of use of inconvertible note currency upon current interchanges of substances and services—Importance of a stable measure of value for deferred obligations—The vast difference between a monetary system and a currency system.

Fixed Pars of Exchange.—Fixed pars of exchange are different signs in the various gold monetary systems for the same weight of pure gold in the chief money of account of one monetary system at mint-issue weight. The same of fixed silver pars of exchange.

Gold.—Thus 113·001605 grains of pure gold are signified in the monetary terms of the British Isles as a sovereign; in France by 25 fr. 22·15 c.; in Germany by 20 mks. 42·96 pf.; in the United States of North America by \$4. 86·66 cents, and so on. Because this weight of gold in the British Isles being multiplied by 2·123863*℥*, the sign for one troy grain gives 240*℥*, into which the sovereign is divided. In France the same weight, being multiplied by 22·31964 c., gives 25 fr. 22·15 c. In Germany the same weight, being multiplied by

18·07893 pf., gives 20 mks. 42·96 pf. In the United States the same weight, being multiplied by 4·306632, gives \$4. 86·66 cents. The same results can be reached by the division of the pure gold in one chief money of account by the pure gold in another chief money of account. Thus, the division of 113·001605 grains of pure gold in £1 by 4·480359 grains of pure gold in a franc gives 25 fr. 22·15 c. This number 25 fr. 22·15 c. is plainly the number of francs which make £1. The same weight divided by 5·531307 gives 20·4266. This is plainly 20·4266 mks. The same weight divided by 23·22 gives 4·8666. This is plainly \$4·8666 of the United States. These are the fixed pars of exchange between the countries mentioned and the British Isles. For finding the fixed pars of exchange between the British Isles and the countries mentioned, the weight of pure gold in their chief moneys of account must be divided by the weight of pure gold in the sovereign, and the result will be: pars with France, '039648 of a sovereign, or 9·516*d.* per franc; with Germany, '048948 of a sovereign, or 11·747*d.* per mark; with the United States, North America, '205484 of a sovereign, or 49·314*d.* per dollar.

Silver—Thus 165 grains of pure silver are signified in the monetary term of India as a rupee. The same weight in Shanghae as 321·6 cash; in Hongkong as 43·78 cents; in Japan as 44·07 sens. These are the Shanghae, Hongkong, and Japan pars with India. The Indian par with these countries is found by dividing the weight of pure silver in the chief moneys of account in these countries by the weight of pure silver in the rupee. The result is: pars with Shanghae, 49·750 a.; with Hongkong, 36·563 a.; with Japan, 36·304 a.

ABSOLUTE PARS OF EXCHANGE.

We have seen how very simple it is to ascertain the fixed pars of exchange on the mint-issue weight of the chief gold moneys of the world between the gold monetary systems of the world, and between the silver monetary systems of the world on the mint-issue weight of pure silver in the silver-standard systems. The mode of ascertaining absolute pars

of exchange, or the equivalent value of gold to silver or silver to gold, upon the gold price of silver in gold-standard countries, and the silver price of gold in silver-standard countries, is equally simple by the use of an intermediary in the form of the ratio. As fixed pars are determined by the division of the weight of pure gold by pure gold in the chief gold moneys of account, and by the division of the weight of pure silver by pure silver in the chief silver moneys of account, the ratio has but to determine the equivalent weight of gold to silver, and it follows that it is only necessary to convert the silver in a silver money of account into gold at the ratio, or to convert the gold into silver at the ratio, and proceed as between moneys of account of the same standard metal. For obtaining the equivalent value or weight of the two metals at a given ratio, the silver would be converted into gold to save the number of figures which the conversion of gold into silver would entail.

Gold for Silver.—Say that the price of silver in the British Isles is $38\frac{1}{2}d.$ per standard ounce, or 444 troy grains. This price, by the unit-of-weight system, or by the division of the constant 942'9955 attached to the British monetary system by the price, gives a ratio of 24'414. With this ratio, to ascertain the absolute par of exchange between the British Isles and India, divide 165 troy grains, the weight of pure silver in a rupee, by 24'414; the result is 6'758, and this is the weight of pure gold in grains equivalent to 165 grains of silver. This weight, 6'758 troy grains of pure gold, divided by 113'0016, the grains of pure gold in the sovereign, gives '059804 of a sovereign, or 14'353*d.* for a rupee.

Silver for Gold.—Say that the price of gold in India is $\text{Rs}26.10\text{ a. }1\text{ p.}$ for one tola, or 180 troy grains of pure gold. This price, by the unit-of-weight system, or by the division of the price by the constant 1'0909 attached to the Indian monetary system, gives a ratio of 24'414. With this ratio, to ascertain the absolute par of exchange between India and the British Isles, divide 165 grains of silver by the ratio, and 6'758 grains of gold are found to be of equivalent value with 165 grains of silver. 113'0016 grains of gold in the sovereign, being divided by 6'758 grains of gold, give 16'7202; and

this is 16·7202, or $\text{Rs } 16.11 \text{ a. } 6 \text{ p.}$ for a sovereign. The rate for £1 in India can be reached by the multiplication of a constant by the ratio between the metals. Under the head of absolute pars in the Indian monetary system, the constant 10·9577 is found against the British sovereign; 10·9577, multiplied by the ratio 24·414, gives 267·506 a., or $\text{Rs } 16.11 \text{ a. } 6 \text{ p.}$ for a sovereign.

Daily Gold Price of Silver and Silver Price of Gold.—The names of 161 countries and islands of the world which use or should use either gold or silver monetary systems are given in this book. The writer does not know in how many of these countries, &c., there are daily quotations of prices of the metal which is not the standard in the standard metal of the country. Few countries possess effective monetary systems. It is only where effective monetary systems are possessed that such quotations could be made. The gold price of silver in London and New York is wired to the ends of the earth daily. The ratio between the metals established by the price should be added to the price. It may reasonably be expected that in the course of time the gold price of silver and the silver price of gold, with the ratio added, will be quoted by all daily papers throughout the world. It would furnish an important guide to the exchange value of all standard and token coins of both gold and silver when sailors, soldiers, and travellers have learned how to use the instruction which such information would convey.

Fixed and Absolute Pars.—Different methods for ascertaining fixed and absolute pars of exchange of gold for gold or for silver, silver for silver or for gold, have now been set forth. Without weights in definite quantities of one or both of the standard substances, there could not be fixed pars or absolute pars of exchange. This will be clearly seen when exchanges based upon inconvertible paper are considered.

Cambists.—Cambists are experts in the foreign and colonial exchanges. Books written by them, such as "Tate's Cambist," in English, and "Arbitrages et Parites," in French, by Ottomar Haupt, are also called Cambists. These works are valuable, and deal with a much wider range of subjects than it is the

purpose that this book should treat of. The arithmetical calculations to reach conclusions are effected in these books by means of the chain rule.

DEVIATIONS FROM PAR.

Premium and Discount on Par.—A rate of exchange between two countries is hardly ever at either a fixed or an absolute par. The deviation therefrom, in the form of per cent. or per mille, is either taken upon the total amount exchanged, or worked into the rate for one chief money of account. Between the British Isles and Australasia, the British Isles and a number of her colonies, France and Belgium, the U.S.A. and Liberia, India and Mauritius, the deviation from par is taken upon the total amount exchanged by so much per cent. or per mille upon the total. The reason for this is, because between these respective countries a money of account of the same weight of pure gold or silver is used. The exchanges between the rest of the world are made up of the fixed or absolute par for one chief money of account, and the deviation from par worked into the rate, making the rate per chief money of account more or less by so much per cent. or per mille. Pairs of exchange depending as they do upon definite weights of pure metal, either gold or silver, they are as tightly fixed between the British Isles and France as between France and Belgium.

Causes of Deviation from Par.—I. Purchase and transmission charges upon standard metal. II. Coinage charges. III. Use of money. IV. Exchange dealers' profit. V. Difference of credit enjoyed by parties to a bill of exchange. VI. Less than legal weight of standard coin for circulation.

I. Purchase and Transmission Charges, and II. Coinage Charges upon Standard Metal.—These are charges within what are called metal points. They are the charges which have to be met by any one transmitting standard metal for use in another country. Such charges add to the rate or weight of metal to be paid in the country making the shipment to the extent of the amount paid in that country, and also as a premium on the

rate to the extent of the charges upon the standard substance in the country to which it is sent. Thus if the standard substance of India, silver, is being sent from the British Isles to Calcutta, the rate of exchange for a rupee would include the London charges, i.e. commission on purchase of silver, packing, cartage, shipping and freight charges, cartage charges in India, and $2\frac{1}{10}$ per cent. coinage charge, in all about 3 per cent. on absolute par.

Under each monetary system the coinage charges are given, so far as the writer knows them. Transmission of metal charges have a tendency to vary from $\frac{1}{8}$ to 1 per cent. between near and the most distant ports of the world.

III. Interest for Use of Money.—Bills of exchange are drawn at sight, or made payable at periods after sight. The rate for a first-class bill at sight would be about equivalent to or rather more than the equivalent cost of the transmission of metal; but if a bill has a period to run beyond sight, the seller of the bill would receive less for the bill as the charge for interest for the time the bill has to run beyond a bill at sight.

IV. Exchange Dealers' Profit.—Financiers, exchange bankers, bullion coin and exchange dealers are important members of the financial and commercial systems of the world. Eminent financiers in combination have enormous power in monetary matters and in moving standard substances, gold and silver, about the world, wherever these substances may be required, upon the best terms of profit that can be arranged.

V. Difference of Credit enjoyed by Parties to a Bill of Exchange.—"Gilt-edged paper" is a common term for bills of exchange bearing the signature of institutions, firms, or individuals of the highest credit. There are degrees of credit, and the lowest is that which attaches to a bill of exchange of which there are grave doubts of its being paid when due. The rate of exchange is adjusted to the state of the credit of the parties to a bill of exchange. On many bills of exchange there are several signatures. Each party signing—which is called endorsing—a bill of exchange is liable for the payment of the bill at the due date.

VI. Less than Legal Weight of Standard Coin for Circulation.

—Some Governments appoint by law that when standard coins have lost a certain weight they are no longer legal tender. In the British Isles, a sovereign which contains less than 112·2921 grains of pure gold is not legal tender. These six causes of deviation from par of exchange are known to those working the exchanges, and can be applied to the fixed or absolute par of exchange in the form of premium or discount as required.

Gold is being shipped by the British Isles to France. What will be the rate of exchange on France for a bill at sight? There is absolutely only one way of reaching the answer. It must be a weight of pure gold in the British Isles for a weight of pure gold in France. Though the answer may be got by the use of monetary signs, it is better to take the weight which is signified by the monetary signs. The mint-issue weight of the pure gold in a sovereign is 113·001605 troy grains, and in a franc it is 4·480359 troy grains. Say that the transmission and coinage charges on gold from London to Paris is 0·595 of 1 per cent.

What is the cost in London of a bill at sight on Paris for 58,432 fr. 56 c. with 0·595 of 1 per cent. added?

1. An absolutely correct way of answering this question is by weight. Multiply 58,432·56 by the pure gold in a franc, 4·480359, and divide the result by the pure gold in a pound, 113·001605 grains. To this result add 0·595 of 1 per cent.,

which gives the answer. $\frac{4\cdot480359}{113\cdot001605}$ of 58,432 fr. 56 c. =

£2316·7710. 0·595 of 1 per cent. on this sum is £13·7847: these together are £2330·5557, or £2330 11s. 1·36d. As multiples of decigrams equivalent to 4·480359 and 113·001605 troy grains are presented in the book, the calculation by this method is facilitated. The deviation from fixed par here is 0·595 of 1 per cent. on the weight of metal expressed in the monetary signs of France as 58,432 fr. 56 c., and in the monetary signs of the British Isles as £2316·7710. The exchange being at that premium, the weight paid for the bill in the British Isles is 0·595 of 1 per cent. more than will be received in France.

2. Another mode, though not the scientific one, is to take the sign for the fixed par between France and the British Isles, viz. 25 fr. 22·15 c., and divide 58,432 fr. 56 c. by it. The result is £2316·7757. 0·595 of 1 per cent. added to this, brings the equivalent of £2330·5605, or £2330 11s. 2·52*d.* to 58,432 fr. 56 c. at 0·595 of 1 per cent. premium on fixed par.

None of these methods are used in practice. Tables of exchange are, or should be, made up in fractions of a penny for the British monetary system, and fractions of a centime for the French monetary system. The nearest fraction in use to 0·515 of a penny in the British Isles is 0·5, or $\frac{1}{2}$ *d.* The nearest fraction in use in France to 0·15 of a centime is $\frac{1}{4}$, or 0·25 of a centime.

3. Take this sum at the nearest rates which can be expressed within the present customs of the trade. British par with France, 9·5*d.* for 1 fr. 58,432 fr. 56 c. at 9·5*d.* = 555,109·320*d.* 0·595 of 1 per cent. on this sum 3302·9004*d.*; together, 558,412·2204*d.*, or £2326 14s. 4*d.*

4. French par with the British Isles, 25 fr. 22·25 c. for one pound. 58,432 fr. 56 c. divided by 25 fr. 22·25 c. gives £2316·6839. 0·595 of 1 per cent. on this is £13·7842; together, £2330 9s. 4*d.*

5. Assume that quotations in the British Isles become the 64th part of one penny, then the fixed par by weight could be nearly expressed, since $9\frac{3}{4}$ *d.* would be 9·515625*d.* 58,432 fr. 56 c. at 9·515625*d.* for a franc gives 556,022·3287*d.* 0·595 of 1 per cent. upon this is 3308·3326*d.*; together, 559,330·0661*d.*, or £2330 10s. 10·66*d.*

6. In France $\frac{5}{8}$ of a centime would give the nearest expression to 0·15 of a centime, the decimal for that being 0·15625. Take the exchange of 58,432 fr. 56 c. at 25 fr. 22·15625 c. for £1 = £2316·77. 0·595 of 1 per cent. on this, £13·7847; together, £2330 11s. 1·12*d.*

7. The actual British monetary sign on the par weight of pure gold in a franc being extended to the fifth decimal place, viz. 9·51569*d.*, gives 556,026·1794*d.* as the equivalent for 58,432 fr. 56 c. 0·595 of 1 per cent. on this is 3·308·3557*d.*;

together, 559,334'5351*d.*, or £2330 11*s.* 2*d.*, as the answer to the sum. It has been seen that this sum of 58,432 fr. 56 c., worked by weights with a premium for charges, yields £2330 11*s.* 1'36*d.*

8. Multiplied by '03964831 the decimal of a pound equivalent to a franc, the result is £2330 11*s.* 1'36*d.* Multiplied by the British fixed sign for 1 fr., viz. 9'51569*d.*, the result is £2330 11*s.* 2*d.* Multiplied by 9 $\frac{3}{4}$ *d.*, or 9'515625*d.*, the result is £2330 10*s.* 10'66*d.* Divided by the French fixed sign for £1, viz. 25 fr. 22'15 c., the result is £2330 11*s.* 2'52*d.* Divided by 25 fr. 22 $\frac{5}{8}$ c., or 25 fr. 22'15625 c., the result is £2330 11*s.* 1'12*d.*

France buys gold at its mints at one full-weight franc, 4'4803 troy grains of pure gold for 4'49005 troy grains of pure gold, or a charge of 2'2 per mille.

Say the expense of transmission of gold is $\frac{3}{8}$ per cent. The charges of $\frac{3}{8}$ per cent. and 2'2 per mille, equal to 0'595 per cent. upon 25 fr. 22'15 c., are equal to 14'75 c., which, deducted from 25 fr. 22'15 c., equals 25 fr. 07'40 c.

This charge of 14'75 c. the shipper of bullion would have to pay.

If he could get a good bill upon France at sight at this cost, it would be better for him than to ship the gold.

This premium of 0'595 per cent., or 14'75 c. on 25 fr. 22'15 c., the seller of the bill in the British Isles would get.

The exchange would be quoted at 25 fr. 7'40 c. for £1, meaning thereby £1 for 25 fr. 7'40 c.

Suppose the seller draws a bill upon France for 1000 fr.; the 1000 fr. would be divided by 25 fr. 7'40 c., and this will give a greater weight of gold to be paid for the bill here than the drawee of the bill would have to pay in France, by the weight of gold which is indicated by 14'75 c. for each sovereign and part of a sovereign.

What is the fixed equivalent in gold dollars of the U.S.A. for £12,864 8*s.* 8*d.*?

1. The sum is $\frac{113'001605}{23'22}$ of £12,864'43333. Answer, \$62606'056 cents.

2. Another mode. In the British monetary system attached to the U.S.A. dollar, the fixed par will be found by $\$4.8666 : £12,864.43333$ multiplied by 4.8666 gives $\$62606.051$. In January, April, July, and October of each year, the mint authorities of the United States give the United States gold value of the chief gold standard (and otherwise) moneys of account of twenty-four countries. Also at the ruling market ratio between the two metals, gold and silver, the gold prices for the chief silver moneys of account of thirteen countries. This is valuable information, which it would be well if other mints of the world would furnish. It would be best that prominence should be given in each return to the ratio of the period. The sovereign of the British Isles is taken at $\$4.86.6\frac{1}{2}$ cents. in this valuation. The conversion of $£12,864.43333$ into dollars at this rate gives $\$62,604.7648$.

French Exchange on Shipment of Gold to the British Isles.—

1. Gold is being shipped by France to the British Isles. What will be the rate of exchange in France upon the British Isles for a bill at sight for $£2330$ 11s. $1.36d.$, the transmission and coinage charges amounting to 0.535

of 1 per cent. Answer by weight. $\frac{113.001605}{4.480359}$ of

$£2330$ 11s. $1.36d.$ = $58,780.2229$ fr. 0.535 of 1 per cent. on this is 314.4741 fr.; together, $59,094.6970$ fr.

2. By the French fixed sign for $£1$, viz. 25 fr. 22.15 c., $£2330$ 11s. $1.36d.$ $\times 25.2215 = 58780.1030$ fr. 0.535 of 1 per cent. on this, 314.4735 fr.; together, 59094.5765 fr. It is needless to repeat the various modes of reaching an answer to this sum.

British Exchange on Receipt of Gold from France.—When gold is being received in the British Isles from France, to ascertain the par rate in the British Isles for a bill at sight on France, the following formula is used, with the deduction of 0.535 of 1 per cent. instead of the addition of 0.595 of 1 per cent. The result will be the equivalent weight yielded by the importation of gold.

Say the sum is 58,780·2229 fr., then $\frac{4\cdot480359}{113\cdot001605}$ of 58,780·2229 fr.

French Exchange on Receipt of Gold from the British Isles.—When gold is being received in France from the British Isles, to ascertain the par rate in France for a bill at sight on the British Isles, the following formula is used, with the deduction of ·595 instead of the addition of 0·535. The result will be the equivalent weight yielded by the importation of gold.

Say the sum is £2330 11s. 1·36*d.*, then $\frac{113\cdot001605}{4\cdot480359}$ of £2330 11s. 1·36*d.*

The Bank of England buys gold at £3 17*s.* 9*d.* per standard ounce, or 440 troy grains. The sign for 440 troy grains of pure gold in the British Isles is £3 17*s.* 10½*d.* This is 1·6 per mille upon £3 17*s.* 9*d.*

The charges upon the transmission of metal are $\frac{3}{8}$ per cent.

These charges, $\frac{3}{8}$ per cent and 1·6 per mille, together equal 0·535 per cent.

This percentage added to par 25 fr. 22·15 c. makes the rate of exchange £1 for 25 fr. 35·64 c.

Suppose the seller draws a bill upon France for 1000 fr.; the 1000 fr. would be divided by 25 fr. 35·64 c., and this will give a less weight of gold to be paid for the bill here than the drawee of the bill would have to pay in France, by the weight of pure gold which is indicated by 13·49 c. for each pound.

By the plan which the writer advocates, the 0·535 per cent. discount would be taken on the British par with one franc.

It will be seen that the extreme deviation from par is 0·535 added to 0·595, making 1·13 per cent., of this 3·8 per mille is due to what some might call coinage charges, though there are no such charges in the British Isles or France. It is a charge for the more rapid possession of money than by means of receiving back the same metal from the mints in

the shape of coin as that which was presented in the form of bullion.

The second charge, 0·75 per cent., is a variable one, and is probably too high. A large parcel of gold could be transmitted to France at $\frac{1}{8}$ per cent.

Interest for the Use of Money.—This charge, like all other charges which cause a deviation from fixed or absolute pars, is worked into the exchanges in the form of premium or discount. This charge always operates as a discount. The rate for a bill of exchange at a longer usance than at sight—bills are drawn at one month, two, three, and six months' sight—would be less than par by the rate of interest for the use of money till the maturity of the bill of exchange. Thus, if a country is shipping bullion, the rate for the chief money of account of the country to which the shipment is being made will be at a premium to the extent of the transmission and coinage charges. But the bill is, say, payable at three months' sight; there would therefore be a discount upon the bill to the extent of interest for the use of the money for three months.

Exchange of Gold for Gold.—Monetary signs in sixteen gold monetary systems for the weight of pure gold in the measure of value and chief money of account of each of seventeen gold-standard systems are given in this book. These are popularly termed "fixed pars of exchange." But the working of the exchanges of any sum by weight is more direct, simple and correct than by converting one sum into another currency by means of the sign for a weight. The formula for working by weights is the following:—

It is desired to know the French sign for the weight of pure gold indicated by the British sign of £25 3s. 10d., or £25·1916. Then $\frac{113\cdot001605}{4\cdot480359}$ of £25·1916 gives it.

$\frac{113\cdot00}{4\cdot48}$ of £25·1916 would give the answer sufficiently near for sailors, soldiers, and travellers.

It is desired to know the British sign for the French sign 251·916 fr. $\frac{4\cdot480359}{113\cdot001605}$ of 251·916 fr. gives it.

SILVER FOR SILVER.

Shanghae is shipping silver to Persia. The rate of exchange for a demand bill on Persia would therefore be at a premium by the amount of charges for transmission, &c., of silver to Persia. If this charge is to be taken on the fixed par of exchange between Shanghae and Persia, it can be added to that par in a percentage on the rate. In the following exchange the actual monetary sign in Persia will be sought for the weight of pure silver indicated by the Shanghae monetary sign.

What is the Monetary Sign in Persia for 68,576·86 Shanghae Taels?—I. Multiply the Shanghae taels by 513·0572 grains of pure silver in one tael, and divide by 63·0316 grains of pure silver in one kran, and the answer is 558,193·85 krans. II. Another mode: find the grains of pure silver indicated by 68,576·86 Shanghae taels, and multiply them by ·3173 of a shahis, the Persian monetary sign for one grain of pure silver; the answer is 558,191·80 krans. III. Another mode: multiply 68,476·86, the Shanghae taels, by 8·1396 krans, 8·139682 being the Persian monetary sign for 513·0572 troy grains of pure silver; the answer is 558,193·83 krans.

What is the Monetary Sign in Shanghae for 558,193·85 Krans?—I. Multiply 558,193·85 krans by 63·0316 grains of pure silver, which make one kran, and divide by 513·0572 grains, which make one Shanghae tael; the answer is 68,576·86 Shanghae taels. II. Another mode: multiply 35,183,851·77 troy grains of pure silver, indicated by 558,193·85 krans, by 1·9491 cash, the Shanghae monetary sign for one grain of pure silver, and the answer is 68,576·84 Shanghae taels. III. Another mode: divide 558,193·85 krans by 8·139682 krans, which is the par with one Shanghae tael; answer, 68,576·86 Shanghae taels. IV. Another mode: multiply 558,193·85 Persian krans by ·122855 of one tael, which is the par of exchange with one kran; answer, 68,576·9 Shanghae taels.

Exchange of Silver for Silver.—Monetary signs in 9 silver

monetary systems for the weight of pure silver in the measure of value and chief money of account in these nine systems are given in this book, page 7.

It is desired to know the Mexican sign for 846 Siamese ticals. The formula is the ticals multiplied by the pure silver in each in decigrams divided by the decigrams comprising the peso i.e. $\frac{846 \times 146.64}{244.41} = \text{Answer.}$

GOLD FOR SILVER.

In ascertaining the weight of silver which is to be obtained for a weight of gold, use is made of the ratio between silver and gold established by the gold price of silver in a gold-standard country, and by the silver price of gold in a silver-standard country. A constant is attached to each monetary system for easily and readily ascertaining the ratio on the gold price of silver and the silver price of gold of the day.

What is the Equivalent in Shanghae with £15,864 5s. 10d. in the British Isles, the Ratio between Gold and Silver being 24.75?—I. The pure silver in a Shanghae tael, viz. 513.0572 grains, divided by 24.75, gives 20.72958 grains of gold as the equivalent with 513.0572 grains of silver. The rest of the sum is the repetition of former practice, $\frac{113.001605}{20.72958}$ of £15,864 5s. 10d. gives 86,479.80 Shanghae taels. **II.** This ratio of 24.75 between gold and silver indicates a price of silver in the British Isles of 38.1008d. for a standard ounce, or 444 grains of pure silver. The silver constant for China in the British monetary system is 1.155,534d.; this, multiplied by 38.1008d. gives 44.02677d.; £15,864 5s. 10d. = 3,807,429.9360d. ÷ 44.02677 gives 86,479.87 Shanghae taels. The ratio of 24.75 between the metals establishes the price of gold in Shanghae at 27.9716 taels for 579.84 troy grains of gold. **III.** The British constant in the Shanghae monetary system is .194884 of a tael; this figure multiplied by 27.9716 gives 5.451217 taels for one sovereign; £15,864 5s. 10d. multiplied by 5.451217 gives the answer, 86,479.69 taels.

SILVER FOR GOLD.

What is the Equivalent in Francs for R. 265,462·8a. and 6p., the Ratio between Gold and Silver being 24·75 ?—I. The pure silver in one rupee being 165 grains, 165 divided by 24·75 gives 6·66666 grains of gold as the equivalent of 165 grains of silver. The sum, therefore, is $\frac{6·66666}{4·480359}$ of 265,462·53125. $265,462·53125 \times 6·66666 = 1,769,748·438583125$ grains of gold $\div 4·480359 = 395,001·4805$ francs. II. Another method: a ratio of 24·75 between the metals establishes the Indian price for one tola, or 180 troy grains of gold at R26·99999. The gold constant at rupees per tola, or 180 grains of pure gold under the head of France is 0·02489. This multiplied by 26·99999 give 0·672029 of one rupee. This is the absolute par with one franc at the ratio of 24·75. R265,462·53125 divided by 0·672029 gives 395,016·48 fr. as the answer. III. In the French monetary system, under the head of absolute pars, the constant 3682·74 c. is attached to the Indian rupee. Divide 3682·74 by 24·75 = 148·8 c. R265,462·53125 multiplied by 148·8 c. = 395,008·2464 fr., which is the answer.

Weights the Corrective of Adam Smith's Highway in the Air.—In all these calculations the object of the writer has been to keep weights in great prominence. If it is possible that a metaphysical view of money may do great damage to the mind, this matter of weight should prove a wholesome corrective. The exchanges between countries possessing effective monetary systems is simply a question of weights of gold and silver. Prices in such countries are the same.

Exchange Tables.—If there were exchange tables for each monetary system, for the purpose of providing a rule-of-thumb process, and for despatch in arriving at the sum to be paid in one country for an amount received in another country, the number of such tables would be 756. It will be observed that by the use of weights the fixed equivalents of gold are readily and correctly reached between gold-standard systems, and the like between silver-standard systems, for any amount

that may have to be exchanged. And that also by the use of the ratio to get an equivalent in gold for the weight of silver, and to proceed as if both were gold, is also exceedingly simple and unfailing in correctness. Given the multiples of the weight of pure standard metal in each of the world's chief moneys of account, and the multiples of the monetary sign for one troy grain of the standard substance in each monetary system, also the ratio established by the gold price of silver in gold-standard countries, and the silver price of gold in silver-standard countries; the premium or discount upon pars resulting from charges; and it is no exaggeration to say that every properly taught young person should be able to work the exchanges with facility and correctness. It should be within the practice of every one to reach fixed and absolute pars of exchange between all the monetary systems of the world.

The figures, which do not amount to 7000, by which these results can be reached by every one who can do decimal multiplication and division, are herein presented. The mental and manual labour with these figures is copying, adding, and subtracting.

The system herein set forth of working the exchanges of small or large sums by the weights of pure metal in the world's moneys of account is recognized by a writer in the New York paper, the *Nation*, as the only scientific one, and it is added that it was tried and abandoned after eight days' experience there some twelve years ago, *because it did not commend itself to those most largely interested in the matter*. The abolition of exchange tables, and the adoption of a universal interest table upon whole numbers and such decimal parts of the same as might be found expedient, would be a great stride to the volapuk of money.

INCONVERTIBLE PAPER CURRENCY.

So far the exchanges between countries possessing effective monetary systems has been dealt with. Currency systems differ from monetary systems in this, that promises to pay a

weight of standard substance indicated upon the face of the promise, at the date when the promise becomes due, cannot be fulfilled. The weight indicated upon the promises may be either at a heavy or small premium in them wherewith to command the weight of standard substance with which they should be at par. Or it may be that the standard substance cannot be procured for any number of promises to pay it. It must not be supposed that because of this the internal and international interchanges of a country must come to a standstill.

There are various habits among the people of the world with regard to the use of intermediaries in effecting interchanges of substances and services between man and man. In Madagascar silver franc pieces are cut into bits, and the prices of commodities and services are weighed out in these small pieces, each man carrying his own scales for the purpose. In India, China, in fact, mostly throughout the East, weight of the standard substance or measure of value, and of gold, is the first thought. Among the masses of the inhabitants of the English-speaking people of the North American continent, paper promises to pay gold or silver are counted as everything and all-sufficient under all circumstances, and greatly superior as an intermediary to a weight of gold or silver. That an alteration in the nature of the intermediary will not greatly interfere with current individual and international interchanges of commodities and services is evident, if it be accepted that the basis of all interchanges is barter.

Now, although this be true, and according to economic teaching, the basis of all interchanges of things is barter, it does not follow that upon the introduction of 7 intermediaries interchanges of things would still be conducted on the conditions of barter. With one intermediary only for all the world it is evident the laws of barter would be preserved. See J. S. Mill, Book III. Chap. vii., Sec. 3, Chap. xviii. on international values, where, though not expressed, one intermediary only is contemplated, and Chap. xxi. Sec. 1, especially paragraph 2 and Sec. 3.

Exchange of Gold for Inconvertible Paper.—Whenever the exchange between two countries for a first-class bill of exchange at sight does not closely approximate to metal points, it is an indication that one or both countries do not possess effective metal monetary systems. Fixed pars of exchange—that is to say, the weight of pure metal in one country for the same weight of pure metal in another country—are given in monetary signs of seventeen gold and twelve silver standard systems in this book; also monetary signs at the ratio of one to one between the gold and silver monetary systems. (See Tables XXI. to XXVIII. at the end of the book.)

Effect of Use of Inconvertible Note Currency upon Current Interchanges of Substances and Services.—The following shows the working and the effects of the use of inconvertible paper upon current interchanges of substances and services:—Suppose countries A and B possess equally well-organized banking systems, but no intrinsically valuable currency or reserves; that in A the unlimited legal tender and final discharger of debts consists of excessive issues by the state of stamped pieces of paper, whilst in B it consists of moderate issues of stamped pieces of paper. Within certain limits, interchanges of raw or manufactured articles, stocks, shares, bonds, services, &c., could be as freely effected as though the instrumentality of gold and silver were employed. The larger quantity of stamped paper in A constituting price than of stamped paper in B, would have no deterrent effect upon the interchanges. The high prices for which the goods, &c., of B sold in A would have to be given for the goods, &c., desired by B, and *vice versâ* with regard to the goods, &c., of A in country B. The impediment to interchanges would arise when the goods of one country are required by the other in excess of demand for goods, &c., on the part of the country of whom the requirement is made; since the paper of A would have no value in B, nor the paper of B in A. There could be no such exchange relation between these countries as substances of value embodied, say, in gold and silver at present affords.

Importance of a Stable Measure of Value for Deferred Obligations.—A Peruvian paper sol or dollar is worth just now $1\frac{1}{2}d.$ Say all Peruvian paper sols are not worth more. Silver is the standard in Peru. The silver or paper sol should contain or exchange for 347·228 grains of fine silver. Take the following premise : three periods in the hypothetical history of Peru—in 1874, 1879, and 1904. During the whole time no change in the value-giving factors embodied in exchangeable articles ; also no change in Peru in the purchasing power of silver during the thirty years ; that during the whole time a paper sol and a silver sol are equally legal tenders ; that in 1874 the silver and the paper sol were at par, and that they will be at par again in 1904. $1\frac{1}{2}d.$ at sixteen parts of silver to one part of gold would be 11·3 grains of silver. Comparing the respective positions of the debtors and the creditors in 1889 in connection with their engagements made in 1874, and of the debtors and creditors in 1904 in connection with their engagements contracted in 1889, the following positions are shown :—The debtor in 1889 pays value-giving factors embodied in substances represented by 11·3 grains of fine silver for value-giving factors embodied in substances received by him in 1874, and represented by 347·228 grains of fine silver. In other words, he pays only one-thirtieth part of the real value which he borrowed. By the same amount the creditor receives less than he lent. Comparing the position of the two parties in 1904, it is at once seen that it is reversed, the creditor getting the benefit which the debtor before enjoyed. This is an extreme illustration, but it strongly shows the paramount importance of obtaining and preserving an effective standard substance for monetary purposes.

The Vast Difference between a Monetary System and a Currency System.—From these considerations it will be seen that it would be difficult to make too much of the difference between a monetary system and a currency system. In an effective monetary system a price and a rate of exchange are both, at bottom, definite weights of pure gold or pure silver disguised under the terms of the money-table of the country using the

metal standard or measure of value. In a currency system, a promise to pay metal which cannot be fulfilled is unquestionably an intermediary to which, in its action, the name and function of price may be attached. But it is not a measure of value, and is only a register to be estimated at a discount on the metal it professes to equal in exchange value. In a country the currency in which consists of inconvertible paper, the limits to the fluctuation of the exchanges range from a premium in paper on the standard metal ranging from a small percentage over the metal represented to thousands per cent. The recent British rate of exchange or price of an Argentine paper peso, which professes to be equivalent to 22·401795 troy grains of pure gold, the fixed par value of which with Great Britain is 47·56*d.*, was 8·5*d.* This shows that the paper price of gold in that Republic was at 459·53 premium. In other words, the paper currency was at a discount of 82·127 per cent.

CHAPTER VI.

Proposed rectification of the unscientific working and unintelligible quotations of the foreign and colonial exchanges—London daily newspapers' weekly quotations of the foreign and colonial exchanges—Intelligible quotations of exchanges—New method of exchange quotations—Interpretation of exchange quotations—The scientific mode of quoting and working the world's exchanges—Premium or discount on fixed sign for weight, or upon weight—Objections to change met—Exchanges in March, 1893, between London and twenty-five foreign and colonial places.

BESIDES the premium or discount on one factor, such as $\frac{1}{2}$ per cent. premium on £1, or $\frac{1}{2}$ per cent. discount on £1, there are two modes of working and quoting the foreign and colonial exchanges in the British Isles. One is in which the first factor is the fluctuating sign or weight of pure gold for a fixed sign or weight of pure gold or pure silver; for instance, 53'29*d.* or 25'0885 troy grains of pure gold, for one Portuguese milreis or 25'0885 troy grains of pure gold. The other is when the first factor in the quotation is a fixed sign or weight of pure gold for a fluctuating sign or weight of either pure gold or pure silver; as, for instance, £1 or 113'0016 troy grains of pure gold for 25 fr. 22 c. or 113'0016 troy grains of pure gold. It must be impressed upon the mind that pure gold is the thing worked with in this country. All credit instruments, such as notes, cheques, bills of exchange, &c., are only promises to pay gold. Silver and copper coins are only tokens of the gold. Moneys of account such as $\frac{1}{64}$ part of 1*d.* or the $\frac{1}{18360}$ part of £1 mean and do the work of 0'007356 of one troy grain of pure gold.

In exchanging a foreign or colonial note or bill of exchange in this country, it makes a great difference whether the exchange is quoted in fluctuating pence or a fixed pound for the moneys of account of another country in arriving at

an estimate of the advantage or disadvantage of the operation to the money-changer and his constituent. If the exchange is quoted in pence, the amount of the bill would be multiplied by pence. If the exchange is quoted in fluctuating money of the country forming the second factor, the quotation or the weight would form the divisor of the amount named on the bill. Take 1000 fr. and treat them in the two different ways. The par of 1 fr. or 4'4803 troy grains of pure gold is 9'516*d.* or 4'4803 troy grains of pure gold; a quotation is given at 9½ or 4'5318 troy grains of pure gold. This looks a good rate for the seller of the bill; in fact, it gives a premium of 1'2 per cent. The par of £1 or 113'0016 troy grains of pure gold is 25 fr. 22'15 c. or 113'0016 troy grains of pure gold. A quotation is given of 25 fr. 60 c., or 114'694 troy grains of pure gold. This looks a good rate, unless the party who wishes to get English money for the bill knows that the amount of the bill will have to be divided by 25'60. This rate gives a discount of 1'4 per cent. In the first instance he would get £39 11*s.* 8*d.* for the 1000 fr.; in the second instance, £39 0*s.* 1*d.*, or 1'3 per cent. less. The invariable rule in each country should be—The fluctuating rate as the first factor; the second factor, the fixed rate or sign for the weight of pure gold or pure silver in the chief money of account of the country upon which the rate is quoted. Under this rule the fluctuating rate will always be used as a multiplier of the amount upon the note or bill. Any youth who can work the unit-of-weight system can convert the rates of exchange as given in the columns of the daily papers into definite weights of pure gold or pure silver, and determine at once whether a country has an effective monetary system or only a currency system, and whether the exchange is at a premium or a discount. It is doubtful if there will be any immediate alteration in the world's present mode of working and quoting the exchanges. The mind will be guided right if it systematically reverses the quotation when it finds that the second factor of it is not the sign for or the weight of the chief money of account in the country upon which the quotation is made.

TABLE VI.

LONDON DAILY NEWSPAPERS' WEEKLY QUOTATIONS OF THE
FOREIGN AND COLONIAL EXCHANGES.

Course of Exchange.

Amsterdam and Rotterdam	...	...	...	12'0 $\frac{1}{2}$	to	12'1 $\frac{1}{2}$
3 m.s.	...	...	...	12'2 $\frac{1}{4}$	to	14'4 $\frac{1}{4}$
Antwerp and Brussels, 3 m.s.	...	...	...	25'46 $\frac{1}{4}$	to	25'51 $\frac{1}{4}$
Berlin and German bank places	...	...	...	20'56	to	20'60
Paris, cheques	...	...	...	25'23 $\frac{3}{4}$	to	25'28 $\frac{1}{4}$
" 3 m.s.	...	...	...	25'46 $\frac{1}{4}$	to	25'51 $\frac{1}{4}$
Marseilles	"	...	...	"	"	"
Antwerp	"	...	...	11'83 $\frac{3}{4}$	to	11'88 $\frac{1}{4}$
St. Petersburg	"	...	...	26'1 $\frac{1}{16}$	to	26'3 $\frac{3}{16}$
Moscow	"	...	...	26	to	26 $\frac{1}{8}$
Genoa	"	...	...	25'86 $\frac{1}{4}$	to	25'91 $\frac{1}{4}$
Leghorn	"	...	...	"	"	"
Naples	"	...	...	"	"	"
Barcelona	"	...	...	44 $\frac{1}{2}$	to	44 $\frac{3}{8}$
Cadiz	"	...	...	"	"	"
Madrid	"	...	...	"	"	"
Seville	"	...	...	"	"	"
Malaga	"	...	...	"	"	"
Valencia	"	...	...	"	"	"
Valladolid	"	...	...	"	"	"
Santander	"	...	...	"	"	"
Bilboa	"	...	...	"	"	"
Lisbon	"	...	...	47	to	47 $\frac{1}{8}$
Oporto	"	...	...	gold	nom.	"
Copenhagen	"	...	...	18'35	to	18'39
Christiania	"	...	...	18'36	to	18'40
Stockholm	"	...	...	"	"	"

Purchasing Rates for the Week's Mail.

Bombay, Calcutta, Colombo, Madras, Kurrachee,	...	...	...	1/5 $\frac{1}{2}$	on demand.
Delhi, Rangoon, and Akyab	...	...	...	F12.35	"
Batavia and Sourabaya	...	...	...	3/3 $\frac{1}{8}$	"
Singapore and Penang	...	...	...	3/3 $\frac{1}{8}$	"
Hong Kong	...	...	...	3/3 $\frac{1}{8}$	"
Yokohama and Hiogo	...	...	...	3/3 $\frac{1}{8}$	"
Shanghai tael	...	...	...	4/6 $\frac{1}{8}$	"
Manila	...	...	...	3/3 $\frac{1}{2}$	"
Interest drafts on Calcutta	...	...	...	1/5 $\frac{7}{8}$	"
" coupons	...	...	...	1/5 $\frac{1}{2}$	"

Quotations for drafts at longer sight are given, but the above are sufficient for my purpose.

When the weights of pure gold, pure silver, and inconvertible paper, indicated by the above signs, are better understood and people have learned the vast importance of measures of value embodied in standard substances such as

gold and silver, and can reach the sign through the thing signified, the quotation might be a sign for a chief money of account, and the weight of pure gold or silver which it contains. As in the quotation of the exchange between the British Isles and the Netherlands, instead of $12\cdot0\frac{1}{2}$ fl., $112\cdot154$ g., g. standing for grains of gold. The publication of the proportion between gold and silver established by the market gold price of silver in gold-standard countries, and the market silver price of gold in silver-standard countries, is of great value as a guide to the exchanges of gold for silver and of silver for gold. The proportion applied to the quotations of pure gold for pure silver, and of pure silver for pure gold, at once discloses the deviation from absolute par. Thus take from the following columns the $8\cdot239$ grains of pure gold for the rupee, and multiply them by the proportion of pure silver to one of pure gold, say it is $20\cdot5$ parts, and $168\cdot8995$ grains of pure silver are obtained ; this on the weight of the rupee, viz. 165 grains, gives $2\cdot36$ per cent. more silver, and shows that the rate on absolute par is a premium in the British Isles of $2\cdot36$ per cent. Apply the same to the Shanghae tael, and the weight is $1\cdot08$ per cent. more than the weight of pure silver in the tael, and shows that the rate on absolute par in the British Isles is a premium of $1\cdot08$ per cent.

TABLE VII.
INTELLIGIBLE QUOTATIONS OF EXCHANGES.

	Grains of gold (g.) Grains of silver (s.)	Grains of gold (g.) Grains of silver (s.)	Grains of gold (g.) Grains of silver (s.)
Amsterdam and Rotterdam ... 3 m.s.	£ or 113'0016 g. for 12'01½ fl.	or 112'154 g. to 12'1½ fl.	or 112'289 g.
Antwerp and Brussels ...	" " 12'2½ fl.	" 114'836 g. " 14'4½ fl.	" 134'700 g.
Berlin and German bank places	" " 25'46½ fr.	" 114'079 g. " 25'51¼ fr.	" 114'303 g.
Paris, cheques ...	" " 20'50 mks.	" 113'716 g. " 20'00 mks.	" 113'938 g.
" 3 m.s. ...	" " 25'23½ fr.	" 113'071 g. " 25'28¼ fr.	" 113'300 g.
Marseilles ...	" " 25'46½ fr.	" 114'079 g. " 25'51¼ fr.	" 114'303 g.
Austria * ...	" " 11'8½ fl.	" 2029'776 s. " 11'88½ fl.	" " 2038'349 s.
St. Petersburg * ...	26½ or 12'271 g. to 26½ d.	" 12'330 g. for rouble	" 277'772 s.
Moscow * ...	26d. or 12'242 g. " 26½ d.	" 12'300 g. " "	" " "
Genoa * ...	£ or 113'0016 g. for 25'80¼ fr.	" 115'870 g. to 25'9¼ fr.	" 116'115 g.
Leghorn * ...	" " "	" " "	" " "
Naples * ...	" " "	" " "	" " "
Barcelona * & 8 other cities	44½ d. or 20'952 g. to 44½ d.	" 20'010 g. for 5 pesetas	" 22'401 g.
Lisbon * ...	47d. or 22'130 g. " 47½ d.	" 22'188 g. " 1 milreis	" 25'0885 g.
Oporto * ...	£ or 113'0016 g. for 18'35 kr.	Gold nominal	" 114'436 g.
Copenhagen ...	" " 18'36 kr.	or 114'188 g. to 18'39 kr.	" 114'499 g.
Christiana ...	" " "	" 114'250 g. " 18'40 kr.	" " "
Stockholm ...	" " "	" " "	" " "

* The places marked thus conduct their business on inconvertible paper. The bills on such places are not encashable in standard metal, but are met by their inconvertible currency.

JULY 9TH, 1891.

PURCHASING RATE FOR THE WEEK'S MAIL.

Gold price of Silver 46*d.* per 444 grains fine Silver.—Proportion 20'500 of Silver to 1 of Gold.

	Sight.	Grains of fine gold.	Grains of fine silver.
Bombay, Calcutta, Madras, Colombo, Kurrachee, Delhi, Rangoon, Akyab	1/5 $\frac{1}{2}$ or	8'239 for	rupee 165
Batavia and Sourabaya ...	2 $\frac{1}{2}$ „	113'0016 „	12 fl. 35 c. 115'420 g.
Singapore and Penang ...	3/3 $\frac{5}{8}$ „	18'657 „	dollar 377'0586
Hong Kong... ..	3/3 $\frac{1}{2}$ „	18'421 „	„ „
Yokohama and Hiogo ...	3/3 $\frac{5}{8}$ „	18'657 „	yen 374'400
Shanghai tael	4/6 $\frac{1}{4}$ „	25'484 „	tael 513'0572
Manila	3/3 $\frac{1}{2}$ „	18'598 „	dollar 360'5614
Interest drafts on Calcutta	1/5 $\frac{7}{8}$ „	8'195 „	rupee 165
„ coupons	1/5 $\frac{1}{2}$ „	8'239 „	„ „

Proportions of Silver to One of Gold should be attached to Gold Prices of Silver and to Silver Prices of Gold.—Attached to the gold price of silver in every city where there is a gold standard there should be the proportion of silver to one of gold established by the price. And to the quotation of the silver price of gold in every city where there is a silver standard, the proportion of silver to one of gold should be added. Say the London price of silver is 45 $\frac{1}{2}$ *d.* par British standard ounce, or 21'423 troy grains of pure gold for 444 troy grains of pure silver. This price is equivalent to 20'725 parts of pure silver to one part of pure gold.

A SUGGESTED MANNER OF QUOTING AND WORKING THE
WORLD'S FOREIGN AND COLONIAL EXCHANGES.
RATES IN THE BRITISH ISLES AS AN EXAMPLE.

The following table shows the London rates of exchange upon the undermentioned countries and cities at the proportion of 20'725 parts of pure silver to one part of pure gold. Column I., names of countries and cities. The currency of those places marked with an asterisk consists

at present of inconvertible paper. Column II., variable (*v*) troy grains of pure gold in London for fixed (*f*) troy grains of pure gold or pure silver in each country's chief money of account at mint-issue weight, with the equivalent weight of pure gold for pure silver at the market rate of the day; (*a*) attached to the weight of gold in the second factor of the quotation indicates the absolute par of pure gold for pure silver at the price of silver at the head of the table. Column III., signs for one troy grain of pure gold and one troy grain of pure silver in each place named. The sign for one troy grain of pure gold in the British Isles is 2·123863*d*.

The second factors in Column II. are the weights of the chief moneys of account used, or which should be used, in the countries to which they are attached. Market rate 20·725 parts of silver to one part of gold.



INSTRUCTIONS FOR INTERPRETING THE LONDON DAILY NEWSPAPERS' WEEKLY QUOTATIONS OF THE "COURSE OF THE EXCHANGES" AND THE PURCHASING RATE OF BILLS OF EXCHANGE UPON THE EAST.

The unit-of-weight system furnishes a very simple key to determine what is meant by the meagre information contained in the weekly quotations of exchanges in the London daily newspapers. Of the 161 countries, all of which probably have transactions in the foreign and colonial exchanges, mention is made of twelve in Europe and ten in the East only. Quotations are given for as many as three places in Italy and nine in Spain, the three in Italy being almost invariably the same quotations, which may be said also of the nine in Spain. Take the first one against Rotterdam and Amsterdam $12'0\frac{1}{2}$ to $12'1\frac{1}{2}$, presumably on demand as the next quotation attached to the same places is for 3 m.s. drafts. What do these figures mean? As the quotation is for the exchange between the British Isles (doubtless London is meant) and the places named, this $12'0\frac{1}{2}$ to $12'1\frac{1}{2}$ must be signs for the weights of the standard substance of one country or the other. The above table shows that in the Netherlands the chief money of account at mint-issue weight is 9'364 troy grains of pure gold. This weight, multiplied by 12 fr. $1\frac{1}{2}$ c., makes 112'508 troy grains of pure gold. Knowing that the British sovereign contains 113'0016 troy grains of pure gold at mint-issue weight, the correct conclusion is arrived at, namely, that $12'1\frac{1}{2}$ indicates 12 fl. $1\frac{1}{2}$ c., or 112'508 troy grains of pure gold. The only other assumption which could be made is that $12'1\frac{1}{2}$ mean 12s. $1\frac{1}{2}$ d., which indicates 68'505 troy grains of pure gold in the British Isles. Divide 68'507 by the fine gold in the florin, and the result is 7 fl. 26'2 c. This cannot be the right answer, because of the following rule of the exchanges:—

Either a variable sign or weight of pure metal in more or less than one country's chief money of account, for a fixed sign

or weight of pure metal in another country's whole chief money of account, or a fixed sign or weight of pure metal in a whole money of account of one country for a variable sign or weight of pure metal in more or less than one whole money of account of another country.

It will be noticed, by reference to the table, that this quotation differs from the proposed one. The quotation, therefore, has to be used as a divisor of the amount of florins to determine the equivalent in British pounds. Divide 1000 fl. by 12'015, the result is £83 4s. 7d. The newspaper quotation gives two rates 12'0½ to 12'1½, 1000 fl. at 12'0½ and British pound equals £83 5s. 11d.

Between countries which use the same weight of pure gold as their measure of value and means of payment, a variation from par is quoted by a premium or discount, as the weight given for the money of account in another country is more or less than the weight in the money of account. The same between silver-standard countries where the measure of value and means of payment is the same weight of pure silver: as between the British Isles and Australasia, France and Belgium, India and Mauritius, U.S.A. and Liberia.

Fixed Gold Pars same Weight of Pure Metal under Different Signs. Fixed Silver Pars same.—The fixed gold pars of exchange being invariable signs for invariable weights of pure gold, and the fixed silver pars of exchange being invariable signs for invariable weights of pure silver, the scientific mode of working and quoting the exchanges would be by premium and discount in one country for the whole money of account in another country.

Exchanges between Effective Metal Standard Countries and Countries using Inconvertible Paper might be worked also by Premium and Discount.—This rule is applicable to working and quoting the exchanges between effective gold-standard and between effective silver-standard countries. The absolute par, that par which exists between a gold-standard country and a silver-standard country, must be based upon the fluctuating price of silver in a gold-standard country, and upon the fluctuating price of gold in a silver standard

country. The exchanges with inconvertible paper currencies might be worked and quoted in the same manner. Were this the practice, Column III. for the British Isles, in the preceding chapter, would only contain the weights or signs for the weights of the chief money of account of gold-standard countries with the rate of premium or discount attached to be paid in the British Isles; the weights or signs for the weights of pure gold to be paid for each chief money of account in silver-standard countries established by the market gold price of silver or the market silver price of gold of the day, with the premium or discount attached. To this might be added the weight of pure silver in each chief silver money of account in silver-standard countries.

The following table gives the proportion of silver to one of gold established by the market price of silver for the day. Column I., Names of countries and cities. Column II., Fixed (f.g.) troy grains of pure gold, being the world's gold measures of value and signs for the same in British money, with premium or discount attached, being the rates of exchange of the day. Absolute (a.g.) weights in troy grains of pure gold and signs for the same constituting par for the chief standard silver coins on the day's market price of silver with the premium or discount attached, being the rates of exchange of the day; also the pure silver (f.g.) in the chief silver moneys of account purchased. All weights of coins at mint-issue weights.

TABLE IX.

Date, October 1st, 1891.

PROPORTION OF SILVER TO 1 OF GOLD, 20'725.

Col. I. Names of countries and cities.	Col. II. Fixed (f.g.) and absolute (a.g.) gold weights with premium or discount attached and fixed (f.s.) silver weights in the world's chief moneys of account.		
I. Alexandria ...	114'7781 f.g. or 20s. 3'77d.	$\frac{3}{8}$ p.c. dis.	
II. Constantinople ...	102'0804 " " 18s. 0'80d.	$\frac{1}{4}$ "	
III. Lisbon * ...	25'0885 " " 53'29d.	$4\frac{1}{4}$ "	
IV. Uruguay * ...	24'0150 " " 51'00d.	40 "	
V. Newfoundland ...	23'5451 " " 50'00d.	$7\frac{1}{2}$ "	
VI. United States N. America	23'2200 " " 49'29d.	$7\frac{1}{8}$ p.c. pm.	
VII. Argentine Re- public *	22'4017 " " 47'56d.	67 p.c. dis.	
VIII. Cuba * ...	21'5019 " " 45'66d.	20 "	
IX. Chili * ...	21'1762 " " 44'97d.	60 "	
X. Brazil * ...	12'6820 " " 26'92d.	14 "	
XI. Netherlands ...	9'3640 " " 19'84d.	$\frac{5}{16}$ "	
XII. Scandinavia ...	6'2280 " " 13'20d.	$\frac{1}{4}$ p.c. pm.	
XIII. Germany ...	5'5312 " " 11'73d.	$\frac{3}{8}$ "	
XIV. France ...	4'4803 " " 9'51d.	$\frac{1}{4}$ "	
Italy *	4'4803 " " 9'51d.	3 p.c. dis.	
Belgium ...	4'4803 " " 9'51d.	$\frac{1}{4}$ "	
Spain *	22'4015 " " 47'57d.	3 "	
XV. Shanghai ...	24'7556 a.g. " 52'57d.	1 p.c. pm.	513'0607 f.s.
XVI. Cochín China ...	18'2386 " " 38'78d.	$\frac{3}{4}$ "	378'0000 "
XVII. Mexico ...	18'1933 " " 38'64d.	1 p.c. dis.	377'0586 "
XVIII. Java ...	18'1492 " " 38'54d.	$\frac{7}{8}$ "	376'1434 "
XIX. Japan ...	18'0651 " " 38'36d.	$1\frac{1}{8}$ p.c. pm.	374'4000 "
XX. Penang, &c. ...	17'3978 " " 36'95d.	$\frac{3}{8}$ "	360'5614 "
XXI. Peru, &c. * ...	16'7540 " " 35'58d.	48 p.c. dis.	347'2278 "
XXII. Tripoli ...	15'1126 " " 32'09d.	$\frac{3}{4}$ "	313'2101 "
XXIII. Russia * ...	13'4027 " " 28'46d.	8 "	277'7722 "
XXIV. Siam ...	9'9909 " " 21'22d.	$1\frac{1}{4}$ p.c. pm.	206'2850 "
XXV. Austria - Hun- gary *	8'2736 " " 17'57d.	7 p.c. dis.	171'4703 "
XXVI. India, &c. ...	7'9648 " " 16'91d.	$3\frac{1}{4}$ p.c. pm.	165'0000 "
XXVII. Venezuela * ...	3'3508 " " 7'11d.	22 p.c. dis.	96'4468 "
XXVIII. Persia ...	3'0413 " " 6'46d.	2 p.c. pm.	63'0316 "
XXIX. Tunis ...	2'0755 " " 4'41d.	$\frac{7}{8}$ p.c. dis.	43'0415 "

QUOTATIONS AND WORKING OF THE WORLD'S FOREIGN
AND COLONIAL EXCHANGES BY PREMIUM AND
DISCOUNT.

This is undoubtedly the scientific mode of quoting and working all foreign and colonial exchanges. It could never lead to the confusion which the present system does. There never could arise the slightest difficulty in understanding what the rate of exchange meant or how to work it. The exchange tables would not be quite so simple to construct, and there may be some other objections to offer to the system, but they are hardly likely to be of such a nature as would outweigh the benefits to the trading and non-trading world which such a change would confer.

We have seen that exchanges between countries using the same weight of metal for their chief standard money of account are worked by premium and discount on fixed pars. Between countries using the same metal but in different quantities in their chief standard moneys of accounts, the pars of exchange are as tightly fixed as between countries using the same weight of metal in their chief moneys of account. Why are the exchanges between the British Isles and Australasia not quoted 19s. 9½*d.* in the British Isles for £1 in Australasia, instead of at a discount, or £1 os. 2*d.* for £1 in Australasia, instead of at a premium? It is obvious that a premium and discount are much simpler to quote and work. And since clever men are constantly befogged over the exchange, the simplicity of the use of premium or discount on pars would lift them into a clearer atmosphere.

As the intelligence of mankind is advanced through proper education upon the subject of money, it will appear that the only scientific manner of working the exchanges is by premium and discount on one factor; that factor between gold-standard countries being a fixed one, and also a fixed one between silver-standard countries—one weight of pure gold or one weight of pure silver. Between countries one of which possesses a gold standard and the other a silver standard, the factor must be a weight of pure gold in a gold-

standard country, and a weight of pure silver in a silver-standard country. Between the first group of countries possessing different chief moneys of account and numbering fifteen, the pars of exchange are fixed. Also between the second group, numbering thirteen, the pars are also fixed. The third group comprises the twenty-eight different chief moneys of account in the world, and the pars between them are absolute, upon the daily gold market price of silver, and the silver market price of gold. In the 161 and more countries of the world making use of the exchanges, the deviation from fixed and absolute pars will find expression in more or less of the weight of the pure standard substance for the fixed or equivalent weight of standard substance embodied in the chief money of account in the country upon which the bill is drawn. Of course such a proposed change as this in the quoting and working the world's exchanges is likely to be considered perfectly impracticable by all parties interested in maintaining the present mode of quoting and working the exchanges. All that I would advance just now in favour of this change is that it is scientific, reasonable, and intelligible by the simplest minds; that the quoting and working of the exchanges between these islands and Australasia, between France and Belgium, between the United States of North America and Liberia, and between India and the Mauritius, &c., are effected in the manner suggested for the whole world, and that I cannot at present see anything so exceptional in the position of these countries to debar other countries of the world from following their examples.

The two main objections which will be urged to this mode of working the exchanges are that upon each sum which has to be converted into some other money of account which does not contain the same weight of pure metal, two calculations will have to be made to arrive at it. The second is that some traders find it difficult to adjust their accounts to the premium and discount. Between countries the chief moneys of account in which contain the same weight of pure metal as in the countries mentioned, only one calculation is

necessary—that of the premium or discount upon the amount. The traders between such countries have to meet the second objection, which is easily overcome, as is shown at p. 170. The prime objection remains, and it is a serious one. But there are considerations of a compensatory nature.

Exchanges worked by Premium and Discount on One Factor.—

The first calculation would be the conversion of the sum to be dealt with into the money of the other country. This between gold-standard countries will always be at a fixed par. Say an invoice on any sum in the British Isles is to be converted into francs. It would always be at 9·515*d.* per franc, or 25 fr. 22·15 c. per pound; either rate produces the same result. There would be only one exchange column in any exchange tables of sterling into French money. The mind of the practised worker of the exchanges would become so habituated to the francs and parts of the same for sterling money, that the conversion would become mechanical. The next calculation is the premium or discount. One interest table would be applicable to the twenty-nine monetary systems with which the people of the British Isles have to do. If tables do not exist with adequate subdivisions, they can easily be made. The French quotation in Belgium embraces $\frac{1}{82}$ of 1 per cent, or 0·0015009 of one troy grain of pure gold. These observations are also applicable to fixed silver pars of exchange.

For quoting and working the exchanges by premium and discount upon absolute pars of exchange, the first calculation would be to find the proportion established between gold and silver by the gold price of silver or the silver price of gold, of the day. This proportion would determine the weight of gold to be paid for a chief silver money of account, or of silver to be paid for a chief gold money of account. The second calculation would be the premium or discount on the amount ascertained by the first calculation. It is not the object of the writer to furnish more than a complete basis for the construction of exchange tables between all countries of the world. Turning to the fifth edition of Sig. L. Bartlett-Amati's useful "Tables of Reduction of the Weights,

Measures, and Money of the Chief Commercial Nations of the World," there will be found fifty-nine pages containing 708 columns of exchanges, of which forty-three pages, or 516 columns, give the exchanges of gold for gold between the British Isles and the U.S.A., the Argentine Republic, Austria-Hungary, France, &c., Denmark, Germany, Portugal, Spain, Egypt, and Turkey. On the proposed system twenty columns would represent the fixed pars with all these countries for any amount of sterling. The remaining sixteen pages, or 192 columns, give the exchanges of gold for silver between the British Isles and Russia and India only. It will be seen that these tables, which are very good as far as they go, do not deal with a moiety of the world's twenty-nine monetary systems. It may be fairly estimated that any exchange table maker could set forth, in complete manner, tables for the twenty-eight monetary systems for use in the British Isles, on the mode of working of the exchanges advocated by me, in the same space. It may be many years before this scientific mode of working the world's exchanges is practised, should it ever be so practised. To the uninitiated, which embraces the mass of mankind, even among those who work the exchanges and obtain their living by the occupation, it would be a great boon, but more especially to travellers, sailors, soldiers, and others among the yearly increasing number of those who visit other countries and have occasion to deal with foreign or colonial money. Whatever may happen, this dissertation will be of use to the intelligent student of money. Though no such change as I advocate may take place, I do most strongly urge upon the world that, for the purpose of securing simplicity, uniformity, and conformity with science, the first factor in quoting and working exchanges upon two factors should invariably be, in each country, the variable money of the country making the quotation or originating the operation for the whole chief money of account of the country with which the exchange is to be made. This is now practised between the British Isles and Mauritius. In the British Isles it is pence per rupee. In Mauritius it is rupees, &c., per sovereign.

The further development of the writer's system by means of the exclusive use of weights of pure metal on issue from mints in the world's chief moneys of account, and the daily ratio between gold and silver for the purpose of determining fixed and absolute pars of exchange, facilitates the comprehension of the subject of money in a very simple and satisfactory manner. It should confirm the opinion of the absolute necessity, in the present state of the knowledge of money, of limiting the definition of it to the standard substance appropriated to currency purposes. This definition rooted in the mind throws a flood of light over the two great perplexities of money as at present understood, viz. the quantity theory and the value theory.

It cannot be doubted that, even among expert financiers, exchange bankers, bullion coin and exchange dealers, very few comprehend the nature, power, and limitations of money. When the subject is better understood, and the intelligence of mankind has been brought to bear upon the two present methods of quoting and working the foreign and colonial exchanges, there is reason to expect that the system which prevails between countries which possess the same weight of metal as the chief money of account in each will be practised, to the exclusion of that which is neither scientific, simple, nor correct. Should this be brought about, the quotations would then be, a premium or a discount in the country quoting on a fixed par or an absolute par of the whole sum to be exchanged.

The formulæ of the sums would be the following. It is desired to know—

I. What is the French monetary sign for the mint-issue weight of pure gold indicated by the British monetary sign £385 7s. 10d.?

$$\frac{113\cdot001605 \text{ mint-issue weight of a sovereign in troy grains}}{4\cdot480359 \text{ mint-issue weight of a franc in troy grains}}$$

of £385·3916. Answer, 9720·174 francs.

II. What is the British monetary sign for the mint-issue

weight of pure gold indicated by the French monetary sign 9720·174 fr. ?

$$\frac{4'480359}{113'001605} \text{ of } 9720\cdot174. \text{ Answer, } \pounds 385 \text{ } 7s. \text{ } 10d.$$

III. What is the Indian monetary sign for the mint-issue weight of pure silver indicated by the Japanese monetary sign 8564 yens 34 sens ?

$$\frac{374\cdot4 \text{ mint-issue weight of a yen in troy grains}}{165 \text{ mint-issue weight of a rupee in troy grains}} \text{ of } 8564\cdot34 \text{ yens. Answer, } \text{R}19,433 \text{ } 5 \text{ a. } 2\cdot7 \text{ p.}$$

IV. What is the Japanese monetary sign for the mint-issue weight of pure silver indicated by the Indian monetary sign R19,433 5 a. 2·7 p. ?

$$\frac{165}{374\cdot4} \text{ of } \text{R}19,433\cdot3266. \text{ Answer, } 8564\cdot34 \text{ yens.}$$

V. What is the British monetary sign for the mint-issue weight of pure gold equivalent in value to the mint-issue weight of pure silver indicated by the Indian monetary sign R12,450 7 a. 8 p. at a ratio between the metals of one part of gold to 24·8156 parts of silver ?

$$\frac{165 \div 24\cdot8156}{113'001605} \text{ of } \text{R}12,450\cdot4791. \text{ Answer, } \pounds 732 \text{ } 11s. \text{ } 8\frac{1}{4}d.$$

VI. What is the Indian monetary sign for the mint-issue weight of pure silver equivalent in value to the mint-issue weight of pure gold indicated by the British monetary sign £732 11s. 8¼d., at a ratio between the metals of 24·8156 parts of silver to one part of gold ?

$$\frac{113'001605}{165 \div 24\cdot8156} \text{ of } \pounds 732\cdot5\cdot46. \text{ Answer, } \text{R}12,450 \text{ } 7 \text{ a. } 8 \text{ p.}$$

A close approximation to these answers would be reached by using the figures to the second decimal place only.

The following were the rates of exchange in March, 1893, between London and the chief monetary systems of the world :—

RATES OF EXCHANGE, MARCH, 1893.

London.

—	Par.	Sight.	—
Constantinople	110.27'56 pi.	—	3 m.s. 110'62
Alexandria ...	98.4'52 „	97 $\frac{7}{8}$	—
Lisbon * ...	53'278 dol.	42 $\frac{1}{2}$	—
Monte Video...	51'004 „	—	3 m.s. 52 $\frac{1}{2}$ d. gold
New York ...	49'316 „	49 $\frac{1}{8}$ to $\frac{1}{4}$	2 m.s. 48 $\frac{7}{8}$
Buenos Ayres	47'578 „	—	3 m.s. 48 $\frac{1}{8}$ gold
Havanna ...	45'666 „	—	2 m.s. 20 $\frac{1}{4}$ to $\frac{1}{2}$ % prem.
Santiago ...	44'985 „	—	—
St. Petersburg (gold) ...	38'059 „	25 $\frac{1}{4}$ to $\frac{3}{8}$	3 m.s. 94'70 & 25 dol.
Rio Janeiro ...	26'394 „	—	„ 12 $\frac{1}{2}$ to 13 $\frac{1}{4}$
Vienna (gold)	12'0088 fr.	12'115 to 12'12 $\frac{1}{2}$	„ 12'22 to 12'22 $\frac{1}{2}$
Amsterdam ...	12'1072 „	12'09 „ 12'1 $\frac{1}{4}$	„ 12'3 $\frac{1}{8}$
Copenhagen ...	18'1595 „	18'14 „ 18'16	„ 18'29
Berlin ...	20'4292 „	20'43 $\frac{1}{2}$ „ 20'44	„ 20'54
Paris ...	25'22155 „	25'16 „ 25'17	„ 25'32 $\frac{1}{2}$

RATES OF EXCHANGE, MARCH, 1893.

London.

—	Par at 37 $\frac{1}{2}$ d. per ounce.	At sight.	Four months' sight.
Shanghai ...	43'76d.	44 $\frac{3}{8}$ d.	—
Hongkong ...	32'16d.	32 $\frac{1}{4}$ d.	—
Mexico ...	32'16d.	31 $\frac{1}{8}$ d.	—
Yokohama ...	31'59d.	—	33 $\frac{1}{4}$ d.
Manila ...	30'75d.	—	35 $\frac{1}{4}$ d.
Lima ...	29'61d.	—	—
Tripoli ...	26'71d.	—	—
Bangkok ...	17'59d.	—	—
Bombay ...	14'06d.	14 $\frac{5}{8}$ d.	—
Teheran ...	5'37d.	—	—

TABLE X.

Mint-issue weight of pure gold and pure silver in the world's immediate past, present, and prospective chief moneys of account. Col. I.—Name of money of account and weight in decigrams. Col. II.—Name and weight indicated by tokens. Col. III.—Name and weight indicated by a minute portion of each chief money of account. Col. IV.—Monetary signs for 1 decigram. Col. V.—Constants for ascertaining the ratio between gold and silver.

GOLD.

	Col. I.	Col. II.	Col. III.	Col. IV.	Col. V.
I. Egyptian ...	pound 74'375	piastre ochr 1000 '074	ochr-el-guerches 10 '0046	13'44 ochr-el-guerches	629'24936 ochr-el-guerches
II. British ...	" 73'224	shilling 10 '366	penny 12 '0047	3'28 pence	942'9955 pence
III. Turkish ...	" 66'146	penny 10 '305	para 1 '0041	60'47 paras	4841'6490 piastres
IV. Portuguese ...	milreis 16'257	piastre para 1000 '016	rei 1 '0041	61'51 reis	615'11646 milreis
V. Uruguayan ...	peso 15'56	centesimo 100 '155	centavo 100 '0050	6'43 centesimos	642'61198 pesos
VI. United States N.A.	dollar 15'046	cent 100 '15	cent '0047	6'65 cents	2067'1834 cents
VII. Argentine ...	peso 14'516	centavo 100 '145	centavo '0045	6'99 centavos	688'8888 pesos
VIII. Brazilian ...	milrei 8'218	10 reis 100 '082	rei 1 '0041	121'69 reis	1216'8733 milreis
IX. Russian ...	rouble old 11'61	1 kopeck 100 '116	kopeck 100 '00725	8'61 kopecks	367'367 kopecks
" " " "	" new 7'74	" " '077	" " '0048	12'92 "	551'05095 "
X. Japanese ...	yen old 15'	sen 100 '15	sen 100 '00936	6'66 sens	250' yens
" " " "	" new 7'5	" " '075	" " '00468	13'33 "	500' yens

TABLE X.

XI. Dutch	...	guilder	6'05	cent	"	'0605	cent	"	'00378	16'53	cents	gilders
XII. Chilean	...	peso old	13'72	centavo	"	'137	centavo	"	'0085	7'28	centavos	pesos
	...	condor new	5'49	"	"	'0549	"	"	'00343	18'21	"	condors
XIII. British India	...	rupee old	7'127	anna 1/4	"	'594	pie 1/32	"	'0046	2'24	annas	annas
	...	" new	4'88	"	"	'305	"	"	'0032	3'28	"	"
XIV. Scandinavian	...	crown	4'03	ore	"	'0403	ore	"	'0050	24'8	ores	crowns
XV. German	...	mark	3'584	pfennig	"	'0358	pfennig	"	'00448	27'9	pfennigs	marks
XVI. Austria-Hungarian	...	florin old	7'258	kreutzer	"	'0725	kreutzer	"	'0091	13'77	kreutzers	crowns
	...	crown new	3'048	heller	"	'0304	heller	"	'0038	32'8	hellers	"
XVII. French	...	franc	2'903	centime	"	'02903	centime	"	'0036	34'34	centimes	francs

SILVER.

I. Chinese	...	tael	334'62	cash	1/100	3'346	cash	1/100	3'346	2'99	cash	1'1206023	tael
II. Trade	...	dollar	244'94	cent	1/100	2'449	cent	1/100	2'449	'41	cents	40'826	dollars trade
III. Mexican	...	peso	244'41	centavo	"	'2444	centavo	"	'038	'41	centavos	40'914994	pesos
IV. Japanese	...	yen	242'61	sen	"	'2426	sen	"	'0379	'41	sen	15'457090	yens
V. Javanese	...	rix dollar	236'25	cent	1/100	'945	cent	"	'0365	'42	cent	4'328442	rix dollars
VI. Philippines	...	dollar	233'64	cent	1/100	2'336	cent	"	'0365	'43	"	42'800906	dollars
VII. Columbian U.S.	...	sol	225'00	centesimo	"	'225	centesimo	"	'035	'44	centesimo	44'444444	soles
VIII. Bolivian	...	boliviano	202'50	"	"	'2025	"	"	'0316	'49	centesimo	49'382716	bolivianos
IX. Russian	...	rouble	179'96	kopeck	"	'180	kopeck	"	'056	'55	kopecks	23'704185	kopecks
X. Siamese	...	tical	146'64	phai-nung	3/16	4'58	soloit	"	'036	'22	phai-nung	1'0428306	ticals
XI. Austria-Hungarian	...	florin	111'11	kreutzer	1/100	1'11	kreutzer	"	'0347	'9	kreutzers	45'	florins
XII. British Indian	...	rupee	106'92	pie	1/100	'556	pie	"	'0348	1'8	pies	1'0909090	rupees
XIII. Persian	...	kran	41'43	shahis	3/16	2'07	shahis	"	1/100	'48	shahis	1'1111111	kran
"	...	"	"	dinar	1/100	'0414	dinar	"	1/100	'48	shahis	"	"

CHAPTER VII.

Foreign and colonial exchanges of intermediaries—"Kelly's Universal Cambist" (1811)—Comments upon his concrete case of the purchase of a parcel of wheat in Dantzic, and the cost of the same in London, illustrating the necessary combined action of prices, and the interchange of intermediaries—The effects of one standard substance and measure of value, one table of weights, and the abolition of monetary signs for the interchanges of the whole world—The working of intermediaries in connection with the prices of other things—The exchanges of the present seven intermediaries upon a scientific basis—Concrete cases—Fixed Pars—Absolute Pars—Gold Constants—Deviations from metal equivalents—The making of bills of exchange of intermediaries—Arbitration of the exchanges of intermediaries—Suggestions for the consideration of the students of the mechanism of the interchanges of things, and the quality and functions of money.

THE terms "prices" and "the foreign and colonial exchanges" indicate the employment of intermediaries in the interchanges of things between man and man, and between community and community. Barter is the interchange of one thing for another thing without the use of an intermediary. The use of counters would constitute price and rate of exchange. We have seen that there are currencies partaking of the nature of counters. Counters have no cost value in any relation whatever to the things which they might be the instruments of interchanging; they therefore could not be made to act as a metal standard substance does. We have seen that the international and intercolonial interchange of one thing for another thing, when society has passed the age of barter, necessitates the employment of four prices and two rates of exchanges of intermediaries, see page 15. It would be the same if the world had only one scientific effective

metal standard intermediary substance, and only one weight table, instead of seven intermediaries and nine weight-tables. If a shipment of a thing in country A for sale in country B proceeds simultaneously with the shipment of a different thing in country B for sale in country A, the necessary rate of the exchange of the intermediaries both in A and B would be pretty much the same ; but if the shipments were made at different periods there might be a very heavy alteration, unless both the countries A and B possessed either an effective gold standard currency or an effective silver standard currency. I have mentioned elsewhere that in any country which possesses an effective metal monetary system, price is a definite weight of the standard substance, whether the price of the thing be a halfpenny or £1000. It is a fact that a weight of gold indicated by each of the prices is as good as weighed out in exchange for the things. The following instance proves the truth of this statement: Here is a silver teapot in a London shop priced under a monetary sign at 385 decigrams of pure gold. In a Paris shop is a precisely similar one priced under a different monetary sign at 398 decigrams of pure gold. This is 3·3 per cent. more than can be obtained in London. The charges of transmission and the exchange would permit of the teapot being sold in Paris under freedom of trade.

In the standard work, "Kelly's Universal Cambist" (1811) there are chain rule instances given of shipments embracing the exchange of the intermediaries. This is one: Example V. page 136, "The last of wheat at Dantzic cost 620 florins, and it is computed that it might be sold in London for 90s. per quarter. Dantzic may draw on Hamburgh for the amount of 166 goschen per rix-dollar banco, and the exchange of Hamburgh on London is thirty-four shillings and sixpence. What would be the profit or loss on the importation of such wheat, reckoning the last of Dantzic equals $10\frac{3}{4}$ English quarters, that the charges at Dantzic will amount to $12\frac{1}{2}$ per cent., and the freight inward and all the charges to be paid in London, including commission to the Hamburgh correspondent, will be 20 per cent ?

English quarters 10 $\frac{3}{4}$	=	1 English quarter
last 1	=	1 last of Dantzic
florins 100	=	620 florins
florin 1	=	112 $\frac{1}{2}$ pm. with charges
goschen 166	=	30 goschen
rixdollar 1	=	1 rixdollar Hamburg banco
shillings 34 $\frac{1}{2}$	=	8 shillings Flemish
pounds 100	=	1 pound
pound 1	=	120 pounds with charges
	=	20 shillings.

This worked out gives 65 $\frac{1}{4}$ shillings per quarter of wheat. It will be observed that of these nine equivalents four are used to arrive at the conversion of one intermediary into the equivalent of the other intermediary, florins into shillings. The object of this calculation is to determine the cost price in British money in London of wheat purchased in Dantzic with florins. The four great factors are two prices, one in Dantzic, one in London, rates of exchange of the intermediaries, and percentage charges.

The Working of Intermediaries in connection with the Prices of other things.—It is only a few years since it was commonly said by an authority in this country, "That as for currency and the exchanges, next to love and religion, they fill the lunatic asylums," repeating a saying of Sydney Smith's. The bold manner in which the delusive and dangerous theory of bimetallism has been supported by speakers and writers who do not manifest the slightest knowledge of metallism, at all events, evidences crass ignorance of the first principles of money. Since perplexity does arise from the use of intermediaries of different characters and diverse nomenclatures, it is necessary to treat the subject fully. There is a game of our childhood called "the game of contrary." Many with one hand holding a handkerchief are told, "When I say hold fast, let go; and when I say let go, hold fast; therefore I say hold fast," and the child has to learn to act differently to the directions contained in the last part of the instruction. We shall see it is the same with reference to the exchanges of intermediaries. I have stated that the scientific method of working the exchanges for the whole world is by premium and discount upon the intermediary of

the country originating the transaction. It is the system practised between countries possessing the same standard money of account, as between France and Belgium, the British Isles and Australasia. It would be the same if the whole world had only one scientific automatic monetary system with no other nomenclature than weight. It is quite clear that if the whole world had a metric pure gold system, prices and rates of exchange would be simply a greater or less weight of gold. Both would be recognized and understood by a child at a glance. If the world possessed the great desideratum of one intermediary only, the following would be the action of the intermediary in international interchanges of things: A shipment of a pound of tea is made in London to Rosario; it cost 4·3 decigrams; the shipper sells his bill of exchange at 1 per cent. premium, there being a demand for bills; having obtained 1 per cent. on the cost of the tea, the cost price in Rosario will be about 1 per cent. less. If the demand for bills necessitates his selling at a discount, the equivalent premium must be added to the cost of the tea in Rosario. This is the manner in which the exchange of intermediaries at present work between scientific automatic monetary systems. The premium immediately operates as a premium, and the discount as a discount, though an adjustment in the reverse order has to be made to the cost in Rosario. We will now take the lb. of tea at the same cost, and with the aid of Table X. on page 106 show the necessity of perceiving that a premium immediately becomes a discount, and a discount a premium. This is so because the quotation of the money of a country originating the operation for a different intermediary is used as a divisor. Assume that Rosario has an effective gold monetary system. In column II. against British ·305 will be found the monetary sign for which is one penny. Against Argentine will be found ·145, the monetary sign for which is one centavo. We are about to use monetary signs after the present manner of the world. The invoice will be made up of pounds or pence in the British Isles, and in pesos or centavos in the Argentine Republic. A pound of tea costs 4·3 decigrams of

gold, the monetary sign for one decigram being 3·28 pence; $4\cdot3 \times 3\cdot28 = 14$ pence, say the exchange of the British for the Argentine money is at a premium. The invoice or bill of parcel is for 5 lbs. of tea, cost 70 pence. The fixed par of exchange between the British Isles and the Argentine Republic is by weight, 14·52 decigrams = 47·58 pence for one peso. The invoice at par amounts to 1·471 peso. The shipper of the tea can sell his bill upon Rosario at the rate of 48 pence per peso. $1\cdot471 \times 48 = 70\cdot608$ pence. Since at this rate of exchange the shipper receives more than the amount he has paid for the tea by ·86 per cent., this percentage must be deducted from the cost of the tea represented by the bill in Rosario payable in pesos. This is an instance of a premium acting as a discount requiring adjustment at the place of sale of the goods shipped. The case of a discount acting as a premium is thus. The sale of the bill at ·86 per cent. off the invoice of the tea at par leaves 1·345 peso. A sum equivalent to the ·126 discount must be added to the amount of the bill payable in Rosario to arrive at the cost of the tea in pesos there. This is an instance of a discount acting as a premium requiring adjustment at the place of the sale of the goods shipped. There are two modes of converting one intermediary into another, one by division, the other by multiplication. Convert £3 into francs. One franc indicates the same weight of pure gold as 9·515 pence. There are 720 pence in £3; $720 \div 9\cdot5156 = \text{f. } 75\cdot66\frac{1}{2}$ centimes, or $\text{£}3 \times 25\cdot22115 \text{ francs} = \text{f. } 75\cdot66\frac{1}{2}$ centimes. The same weight of gold is indicated by a pound sterling and f. 25·22·15 centimes.

We will now assume that the whole world possesses one scientific automatic gold standard, the metric weight table, and has thrown off the additional monetary signs. The object being simply to show the action of price and the exchange of the intermediary as essential concomitants in the international and intercolonial interchanges of things, charges will be left out. The prices shall be a variable number of decigrams of pure gold. We will say that country A ships a weight of tea equivalent to one British lb., and has paid

4½ decigrams for it ; the rate of exchange is one-half per cent. against the shipper. What is the cost of the lb. in London ? It is manifestly 4.25 decigrams of gold + $\frac{1}{2}\%$ = 4.27 decigrams of gold : Answer. The use of one intermediary for the whole world, say gold, would confine the exchanges within a very small percentage fluctuation, as is at present experienced between the effective gold monetary systems of the world.

We will now take instances of shipments by a country possessing an effective silver monetary system to a country possessing an effective gold monetary system at two different periods. One when the ratio of silver to gold is 15.7 to 1 , and the other when it is at 34 of silver to 1 of gold.

II. In 1873 a weight of tea equivalent to 1 lb. cost 66.72 decigrams of pure silver ; the ratio of silver to gold was 15.7 to 1 ; the exchange of the silver intermediary for the gold intermediary is $\frac{1}{2}$ per cent. against the shipper. What is the cost of the pound of tea in a gold standard country ? The sum is $\frac{66.72 + \frac{1}{2}\%}{15.7} = 4.27$ decigrams of gold : Ans.

III. In 1897 at the same price, and at the ratio of 34 parts of silver to 1 part of gold and $\frac{1}{2}$ per cent. added, what is the cost price in a gold standard country ? The sum is $\frac{66.72 + \frac{1}{2}\%}{34} = 1.97$ decigrams of gold : Ans.

IV. On the same terms as the last instance, excepting that the intermediary is a silver-cum-counter charge, one upon which legislation has conferred a bounty of 40 per cent., what is the price of the pound of tea in a gold standard country ? The sum is $\frac{66.72 + 40\% + \frac{1}{2}\%}{34} = 2.76$ decigrams : Ans.

V. Assume that the shipping price of tea has risen 20 per cent., and take the same terms as in instance IV., and we have $\frac{66.72 + 20\% + 40\% + \frac{1}{2}\%}{34} = 3.40$ decigrams : Ans.

Comparing the cost of the tea in a gold standard country

in 1897, instance III. with instance II., it was 54 per cent. less than in 1873. With a silver-cum-counter charge currency, by which a fictitious value of 40 per cent. was conferred on silver as an intermediary, the cost of the tea in 1897 is 35 per cent. less than in 1873. With an assumed rise of 20 per cent. in the price of tea at the port of shipment compared with the price in 1873, the other conditions the same as in instance IV., the cost price in a gold standard country is 20 per cent. less.

In the foregoing we have an instance of the combined operation of price and the exchange of intermediaries between two countries, one possessing an automatic pure gold standard, and the other a silver-cum-counter charge currency at different ratios between gold and silver.

A pound of tea shall be used in illustrating the effect of the combined operation of prices and the exchange of the intermediaries between the British Isles and other parts of the world, using the other currencies which have been described.

Automatic Gold for Gold.—Shipment of tea in London for New York. Since there is no coinage charge in the monetary system of the U.S.A., there can be no disturbing action from this cause. The standard of the U.S.A. is automatic pure gold. The price of the pound of tea is 4·3 decigrams, or 14 pence. The rate of exchange is $\frac{1}{2}$ per cent. premium, or 49·56 pence per dollar. A cent is the monetary sign for '1505 of a decigram of gold. The sum is $\frac{1 \times 4\cdot3 + \frac{1}{2}\%}{\cdot1505}$

= 28·7 cents: Ans. The equivalent discount to the premium would be adjusted in New York.

Automatic Gold for Gold-cum-coinage Charge.—Tea to Australia at the same price. The coinage charge in Australia is 1 per cent. Should the state of the markets in London and Australia necessitate the shipment of bullion to the latter country, the exchange would be in favour of England to the extent of the coinage charge. The exchange therefore might be $1\frac{3}{4}$ per cent. premium. The sum is 4·3 decigrams + $1\frac{3}{4}\%$ = 4·375 decigrams or 14·34 pence: Ans. The equivalent discount to the premium would be adjusted in Australia.

Automatic Silver for Automatic Silver.—China and Singapore both possess automatic silver currencies. Assume the shipment of a pound of tea from China to Singapore. Cost of 1 lb. of tea, 132 decigrams of silver or 394 cash. The rate of exchange is, say, $1\frac{1}{2}$ per cent. premium. The standard in Singapore might be taken as the Mexican dollar, or the yen, or the British dollar. The Mexican dollar would make the cost per pound as follows, the cent indicating 2'444 decigrams of silver. The sum is $\frac{132 + 1\frac{1}{2}\%}{2'444} = 54'8$ cents: Ans. The equivalent discount to the premium would be adjusted in Singapore.

Automatic Silver for Silver-cum-coinage Charge.—Take China for the first-named, and Mexico for the second. In this latter country the coinage charge is 2 per cent. Cost of tea the same as in the last instance. Assume that Mexico has to import silver bullion; the exchange would include the coinage charge. Say, therefore, that the China rate is 3 per cent. premium. The sum is $\frac{132 + 3\%}{2'444} = 55'6$ centesimos: Ans. The equivalent discount to the premium would be adjusted in Mexico.

Automatic Gold for Inconvertible Paper based on Gold.—Take the British Isles for the former and the Argentine Republic for the latter at 185 per cent. premium in paper for gold. This premium equals 64'9 discount. The sum is $\frac{185 \times 100}{285} = 64'9$. Say that there is a supply of bills in excess of demand, and therefore bills at this ratio are in demand at $1\frac{1}{2}$ per cent. discount, what is the cost of 1 lb. of tea in Rosario? '145 of a decigram is the weight of gold indicated by a centavo. The sum is $\frac{4'3 - 64'9\% - 1\frac{1}{2}\%}{'145} = 10'6$ centavos: Ans. The premium equivalent to $1\frac{1}{2}$ per cent. discount must be adjusted in Rosario.

Automatic Silver for Inconvertible Paper based on Silver.—The currencies of South and Central America, with the exception of Venezuela, Bolivia, and those parts in the

possession of the European powers, consist of inconvertible paper, many of them before and for some years after 1873 based upon silver. These countries nominally had what is called the double standard. One by one they are becoming nominally on a gold standard without any gold. It may be fairly assumed that one or more of the Central American States has a currency consisting of inconvertible paper based upon silver. For the sake of an example, let it be supposed that there is such a State, and that its chief silver money of account is at a premium in paper of 150 per cent. We will take China as an instance of automatic silver, and Guatemala as an instance of inconvertible paper based on silver. A premium of 150 per cent. equals a discount of 60 per cent. Assume that the supply of bills is greater than the demand, and that the rate in China upon Guatemala is at 2 per cent. discount. The weight indicated by a centesimo in Guatemala is 2.25 decigrams of silver. The price of the tea in China is 132 decigrams of silver. The sum is $\frac{132 - 60\% - 2\%}{2.25}$

= 23 centesimos: Ans. The premium equivalent to 2 per cent. discount must be adjusted in Guatemala.

The teaching and practice for children should commence with the assumption that the world has only one scientific gold intermediary, the abolition of monetary signs, and the use of one weight measure for the whole world, the metric being undoubtedly the best. By these means an intelligent child could be easily taught prices, and the exchanges of the one intermediary. Both prices and the exchanges would be so much more or so much less weight of pure gold in a percentage form. This thoroughly understood and practised, the next step would be to master the exchanges of seven intermediaries, by means of weights of pure gold and pure silver, with percentage deviations from fixed and absolute pars. It has been seen that these seven intermediaries present forty-nine different exchanges. But when one is mastered there should be no difficulty in working them all.

The table preceding this chapter in its Cols. I., II., IV., and V. contains all the information which is requisite to

enable the sailor, soldier and traveller to ascertain the closely approximate equivalent value of the world's seven monetary and currency intermediaries; the tokens for them and the paper promises to pay them everywhere.

Assume that the world possesses 17 effective gold and 8 effective silver monetary systems. Then with the help of it, each for himself, without the assistance of Whittaker or any other directory, could discover at once on the only true principle, that of weights of pure gold and pure silver, the fixed and absolute pars of exchange or equivalents between the 25 metal monetary systems. Now a large proportion of the people of the world effect their interchanges of things by means of rotten currency systems based on either gold or silver, the weights of which are presented in the table, and silver-cum-counter charge currencies. To find out the rate of interchange of these, percentage on the weights given has to be used to determine the weight of gold or silver indicated by the constantly fluctuating rate of exchange.

I. Fixed Pars.—What is it between the United Kingdom and France? The weight of pure gold in the franc divided by the weight of gold indicated by the British penny, gives the answer. The sum is $2.903 \div .305 = 9.5$ pence. What is it between France and the United Kingdom? The sovereign must be divided by the franc. The sum is $73.224 \div 2.903 = \text{fr. } 25 \text{ } 22.15 \text{ centimes}$. How many centimes are equivalent to one shilling? The sum is $3.66 \div .02903 = 126 \text{ centimes}$, or 1 franc 26 centimes. It is unnecessary to give instances of fixed silver pars.

II. Absolute Pars.—At the ratio of 34.13 parts of silver to 1 part of gold, what is the Mexican equivalent to one franc? The decigrams of gold in the franc, multiplied by the ratio and divided by the weight indicated by the centavo, gives the answer. The sum is $\frac{2.903 \times 34.13}{2.444} = 40.54 \text{ centavos}$.

At the same ratio, what is the French gold monetary equivalent to one Mexican peso? The decigrams of silver in the peso must be divided by the ratio, and the product by the

decigrams of gold in the franc. Thus $\frac{244'41}{2'903} \div 34'13 = 2$ francs 45 centimes.

III. Gold Constants.—The object with which these are given, is to determine with ease the ratio of silver to one of gold upon the variable gold price of silver in gold monetary systems; and between gold and silver in silver monetary systems on the variable silver price of gold. The gold constants in gold monetary systems must be divided by the gold price of silver of the day in the monetary sign attached to the constant, and the result will be the ratio. The silver constant in silver monetary systems must be used as a divisor of the silver price of gold in the monetary sign attached to the constant, and the result will be the ratio. As an instance of the use of the gold constant: say the price of silver in the British Isles is 27½ pence per ounce, the constant 942'995 pence against Britain gives the ratio 34'13 of silver to 1 of gold. The sum is $942'995 \div 27'625 = 34'13$. As an instance of the use of the silver constant, the silver price of a kilogram of gold in Mexico is 1396'40 pesos. The constant attached to Mexico is 40'9015 pesos. The sum is $1396'4 \div 40'9015 = 34'13$ the ratio.

IV. Deviations from Metal Equivalents.—The world has experienced within a quarter of a century an alteration in the ratio of silver to gold from, say, 15'75 parts of silver to 1 of gold to 34 parts of silver to 1 of gold—a rise in the silver price of gold of 122 per cent. and a fall in the gold price of silver of 54 per cent. But in the same period there have been greater changes in inconvertible paper, even as much as 400 per cent. These three columns are equally useful in exposing the component parts of the five other intermediaries. All the seven have as their basis either a definite weight of gold or a definite weight of silver. Let us use these three columns to expose what is meant by a few quotations of the rates of exchange culled from the *Times* newspaper, the ratio between the metals being 34'21 parts of silver to 1 part of gold. On the 23rd and 24th June, 1897, under *Exchanges on London*, there are sixteen quotations. Eight of these are in

the moneys of foreign countries, and seven are in British pence. Under *Course of exchange*, by which is meant the rates in London upon other countries, there are quotations on twelve different countries, counting Denmark, Sweden, and Norway as three. There are only three quotations in pence, one of them being on Russia, which country responds in roubles for ten pounds. The remaining quotations are in the moneys of the foreign countries. All quotations in this country should be in the money of this country for both foreign and colonial moneys. The present system is unscientific and misleading, and should be abolished. There are quotations for sight bills and three months' sight bills at a difference of 1'44 per cent. This shows at the rate of $5\frac{3}{4}$ per cent. per annum, less risk and commission. There is a difference between Paris and Brussels cheques of 1'5 per mille in favour of Paris. There is a difference between Paris and Italian cheques of $4\frac{1}{4}$ per cent. against Italy. This is not accounted for by greater distance or worse credit, but results from the currency of Italy being inconvertible paper based on gold. The sight rate on Madrid is given at 32 ps. 50, this means $32\frac{1}{2}$ pesetas; a peseta contains the same weight of gold as the franc. The monetary sign $32\frac{1}{2}$ pesetas, divided by the Spanish monetary sign for one decigram of pure gold, reveals the weight of pure gold indicated by the quotation. 100 centimos make one peseta, and the monetary sign for one decigram of pure gold is 34'44 centimos. The sum therefore is $\frac{3250}{34'44} = 94'37$ decigrams of pure gold. The

Spanish fixed par of exchange with London gold for gold is 73'22 decigrams of gold. This shows that the quotation 32'5 pesetas is in inconvertible paper based on gold, and that the gold is at 29 per cent. premium in paper. Buenos Aires on London is quoted at 16'14 pence. This quotation divided by the British monetary sign for one decigram of gold, gives the weight of gold indicated by the quotation. The sum is $\frac{16'14}{3'28} = 4'93$ decigrams. The table shows that the weight of the Argentine peso is 14'516 decigrams; this shows that

the intermediary in use is inconvertible paper based on gold : that the paper is at a discount of 66 per cent., or in other words, gold is at a premium of 194 per cent. in the inconvertible paper intermediary. The London rate on Calcutta for a telegraphic transfer is $14\frac{2}{3}\frac{5}{8}$ pence, while the ratio between the metals is 34·21 parts of silver to 1 part of gold, the price of silver of the day being $27\frac{9}{16}$ pence per 444 troy grains. What intermediary is indicated by $14\frac{2}{3}\frac{5}{8}$ pence? The decigrams of gold indicated by 14·78125 pence is 4·51 decigrams. The sum is $\frac{14\cdot78125}{3\cdot28} = 4\cdot51$. The rupee is 100·92 decigrams

of silver ; the equivalent in gold at 34·21 of silver to 1 of gold is $\frac{106\cdot92}{34\cdot21} = 3\cdot12$ decigrams ; this compared with 4·51 decigrams yielded by the quotation of $14\frac{2}{3}\frac{5}{8}$ pence, shows that the quotation is for a silver-cum-counter charge intermediary bearing a fictitious value of $44\frac{1}{2}$ per cent.

From these few instances it should be clearly seen that this table is not only of use for determining equivalents between effective monetary systems, but also the equivalents between the seven present diverse intermediaries.

On page 5 of the writer's "Guide to the Exchanges for the use of Sailors and Travellers," there are directions for ascertaining what is meant by newspaper quotations of rates of exchange.

THE MAKING OF BILLS OF EXCHANGE OF INTERMEDIARIES.

For Finance operations round sums for the same money of account or for the moneys of account of other countries wherein the chief moneys of account differ, are drawn. If the currency is the same as that in which the bill is drawn, the quotation would be a premium or a discount of so much per cent. or per mille on par. If the currency is different, the quotation would be by premium or discount expressed either in the money of account of the country in which the quotation is made for the chief money of account of the country upon which the bill is drawn, or in the money of account of the country on which the bill is drawn.

INSTANCES IN THE BRITISH ISLES.

I. £1000 on Australia.—Quotation either a premium or discount per cent. or per mille.

II. Frs. 25,221·5 on France.—Quotations francs for a pound. This is used as a divisor of francs to ascertain the equivalent in sterling. Say the quotation is frs. 25·10 c. per £. The same weight of pure gold is indicated in England by a £ and frs. 25·2215 in France. Frs. 25·10 per £ shows a quotation of 4·8 per mille discount. But frs. 25·10 used as a divisor of frs. 25,221·5 = £1004·8 or £1004 16s. Frs. 25,221·5 at par is £1000 only. Say that the exchange is quoted frs. 25·30 c. per £, then frs. 25,221·5 ÷ 25·30 = 3·12 per mille premium.

III. Frs. 25,221·5 on France.—Suppose the quotation to be in pence. The British par with one franc is expressed in 9·516 pence. Say the exchange is 9·560 pence = £1004 13s. 2d. This is a premium of 4·6 per mille. Say the exchange at 9·1472 pence = £995 8s. 2d. This is a discount of 4·6 per mille.

This last is on the same principle which governs the working of the exchange between countries the chief moneys of account in which consist of the same weight of pure metal, whether that metal be gold or silver.

The question to be asked is, Is this quotation showing a premium to be used as a multiplier or a divisor? If it is to be used as a divisor, the premium becomes a discount, since the seller of the bill obtains less than par for the amount of the bill. If he sells at a discount, the divisor being less, he would obtain more than the amount of the bill.

Each invoice or bill of parcel of things prepared in a country for shipment to any other country must be converted into the money or currency of the country to which the things are sent. This must be so because they have to be sold for the currency of that country. If all prices and rates of exchange were simply in weights of gold and silver with percentage deviations from fixed pars or absolute pars, the foreign and colonial exchanges would be of a much more simple character. But whether monetary signs were abolished

or retained, the weight of the pure metal or the monetary sign for the same in the country making the shipment should be used as the divisor of the invoice to bring it into the currency of the foreign or colonial country to which the goods are sent. Quotations of the exchanges of intermediaries made in weights, or monetary or currency signs, always resolve themselves into deviations from par, more or less in a percentage or per mille form. In a quotation wherein a coinage charge, a counter charge, a transmission of metal charge, or a commission charge, form a part, the rate scientifically used would be a premium or discount on the currency of the country wherein the exchange operation commences. It is the same with regard to inconvertible paper. The quotation expressed in percentage premium is always for either a definite weight of pure gold or a definite weight of pure silver. Take, for instance, 186 per cent. premium in Argentina for the weight of pure gold in the peso payable in the British Isles. The meaning of this is, 286 paper pesos for the weight of gold in the British Isles equivalent to 100 pesos or 1451·6 decigrams of gold. The rate for an inferior bill of exchange compared with that for a superior bill of exchange, would be at a discount. The rate for a bill of exchange for longer usance than sight compared with the rate for a bill at sight would be at a discount, determined by the interest charged by the buyer from the seller of the bill for the use of the money for the additional time. From this it will be seen that there may be discounts to set against premiums in arriving at the percentage or per mille quotation for a bill of exchange, more or less upon the fixed or absolute par.

ARBITRATION OF EXCHANGES OF INTERMEDIARIES.

This is commonly practised by means of a sum in chain rule form. The ordinary mode of sending one intermediary from a country to another country is by means of a bill of exchange direct. But there is an indirect mode of making the remittance which consists in operating through several

countries for the purpose of making a more advantageous remittance than the direct one would yield. Say that A in one country has to make a remittance to B in another country. The intermediary in both countries might be of the same nature or for one or other of the other six intermediaries. The rate is rarely, if ever, at the exact equivalence, or, in other words, at either a fixed or an absolute par. If the operator invests the intermediary of his country at a premium on par for the intermediary of the other country, he will obtain less than he paid in the country where the bill has to be paid. If he buys the bill at a discount upon par he will receive more in the country where the bill has to be paid. Here the rule of contrary operates. A discount becomes a premium and a premium a discount. For the seller of the bill the language conveys the right idea. If he sells at a premium he gets more than par. If he sells at a discount he gets less than par.

Say the operator invests £500 at a premium of 2 per cent., what is the amount of the bill he could buy upon Australia?

The sum is $\frac{500 \times 100}{102} = £490.196$: Ans. Two per cent.

added to this sum brings it to £500. To the question, What percentage must be taken off so that when 3 per cent. be added 100 can be obtained?—the answer is: Multiply the percentage by 100 and divide the result by 100 plus the percentage. The sum is $\frac{2 \times 100}{102} = 1.96078$ per cent.: Ans.

Say that the operator invests £500 at 2 per cent. discount, what is the amount of the bill he could buy upon Australia?

The sum is $\frac{500 \times 100}{98} = £510.20407$: Ans. Two per cent.

deducted from this sum brings it to £500. To the question, What percentage must be added so that when 2 per cent. is taken off 100 can be obtained?—the answer is, Multiply the percentage by 100 and divide the result by 100 minus the percentage. The sum is $\frac{2 \times 100}{98} = 2.030602$ per cent.: Ans.

Assume that the following countries possess effective gold monetary systems; that A in London has to remit to B in Italy a weight of gold = to X, and that the direct rate on Italy is $\frac{3}{4}$ per cent. premium for a sight bill. He desires to know whether he could not do better by a circuitous remittance through Holland, Russia, and France in bills on demand. He commences the operation by the purchase of a bill on Holland at $\frac{1}{4}$ per cent. discount, his firm in Holland purchases a bill on Russia $1\frac{1}{2}$ per cent. discount, his house in Russia purchases a bill on France at $\frac{1}{2}$ per cent. premium, his house in France purchases a bill in Italy at $\frac{1}{4}$ per cent. premium.

The chain rule sum should be :

London	X	—	$\frac{1}{4}$	per cent. discount	=	X Holland.
Holland	X	—	$1\frac{1}{2}$	„ „	=	X Russia.
Russia	X	+	$\frac{1}{2}$	„ premium	=	X France.
France	X	+	$\frac{1}{4}$	„ „	=	X Italy.

Here we have $1\frac{3}{4}$ per cent. discount, which equals to the buyer $1\cdot78117$ per cent. premium, and $\frac{3}{4}$ per cent. premium, which equals to the buyer $\cdot744444$ per cent. discount. $\cdot744444$ deducted from $1\cdot78117$ leaves $1\cdot03673$ per cent. premium. We took the direct rate on Italy at $\frac{3}{4}$ per cent. premium, or at $\cdot744444$ per cent. discount to the buyer. This shows that by the circuitous exchanges the buyer has done better than the direct rate would have given him.

Very much greater discounts might be obtained by longer usance and inferior bills. But against the longer usance the interest on the use of money would be a set off to diminish the profit.

In this transaction the buyer or his agents have bought bills presumably at the same usance in four operations in as many different countries. In two countries he bought at the respective discounts of $\frac{1}{4}$ and $1\frac{1}{2}$ per cent., and in two countries at the respective premiums of $\frac{1}{2}$ and $\frac{1}{4}$ per cent. Deducting the premiums from the discounts, there is a gain of 1 per cent. Since the direct rate between London and Rome was $\frac{3}{4}$ per cent. premium, and the rate yielded by the

circuitous route is at a cost of $\frac{1}{4}$ per cent. less, the circuitous route is the best. It will be noticed that in this operation there have been no per mille charges for commission on the purchase of the bills on the Continent.

Sterling is represented by X in London: the same letter indicates the same weight of metal in Holland, Russia, France, and Italy.

The following is an example of the arbitration of exchange with five of the world's present intermediaries, viz. automatic gold, automatic silver, silver-cum-counter charge, inconvertible paper based on gold; inconvertible paper based on silver, in the following consecutive countries, Great Britain, China, British India, Argentina, Columbia, U.S. We will take the ratio between gold and silver at 40 parts of silver to 1 part of gold—the price in London, August 21st, 1897, 24 pence per 444 troy grains, the British equivalent to the rupee 9 pence, the rate of exchange between the British Isles and British India $15\frac{1}{2}$ pence, showing a fictitious value imparted to the rupee, as an intermediary, of $72\frac{1}{4}$ per cent. The premium in paper for gold in Argentina is, say, 180 per cent. The premium in paper for silver in Columbia, U.S., is, say, 150 per cent. The equivalents to sterling in China, British India, Argentina, and Columbia, present very different ratios. Between China and the British Isles it depends upon the ratio between gold and silver alone. Between the British Isles and British India it depends upon the ratio between gold and silver as to the increase or diminution of the purchasing power of other intermediaries by the silver-cum-counter charge intermediary, besides the effect of a 5 per cent. import duty upon silver into British India if that metal has to be sent thither. In this arbitration of exchange, bills of exchange only will be used. Between the British Isles and Argentina the standard substance gold being that of both countries, the premium in paper for gold will alone determine the ratio.

It is necessary to remit the equivalent to 73,224 decigrams of gold or £1000 in the British Isles to the United States of Columbia. The rate of exchange for a bill upon Columbia is 5 per cent. discount on par. What addition must be made to

the weight of gold so that if 5 per cent. be deducted from that weight, the weight would be 73,224? The addition of a percentage premium equivalent to 5 per cent. discount or 5.263 per cent. will make the sum 77,077 decigrams. 5 per cent. deducted from this leaves 73,224 decigrams. The sum is $\frac{73,224 \times 100}{95} = 77,077$ decigrams. The currency inter-

mediary of Columbia is inconvertible paper based on silver, and it is at 150 per cent. premium in paper. The pure silver in the Columbian sol is 225 decigrams. The ratio between the metals is 40. The discount equivalent to the 150 per cent. premium on silver in paper sols is 60 per cent. The sum is $\frac{77,077}{225 - 60\% \div 40} = 34,253$ sols : Ans.

We will now see whether it is better to make the purchase of this bill, or to make an arbitration of exchange through the countries mentioned upon assumed equivalents between the intermediaries upon the terms already indicated at certain premiums and discounts.

I. The rate in the British Isles on China is 4 per cent. discount upon par. The application of a percentage premium equivalent to 4 per cent. discount to 73,224 decigrams of gold makes the weight 76,275 decigrams. The silver weight of the tael is 334.6254 decigrams of pure silver. The ratio between gold and silver is 40 to 1. To find the weight of silver for the 76,275 decigrams of gold in China, the sum is $\frac{76,275}{334.6254 \div 40} = 9,117.5$ taels or 3,050,947 decigrams of pure silver : Ans.

II. The rate in China upon British India is 3 per cent. premium. To find the amount of the bill upon British India which can be purchased with 3,050,947 decigrams of silver at this premium, the sum is $\frac{3,050,947 \times 100}{103} = 2,962,084.3$

decigrams of silver. The rupee, as an intermediary, bears a fictitious value of $72\frac{1}{4}$ per cent. The meaning of this is, that the 106.92 decigrams of pure silver which constitute a rupee has the purchasing power for other intermediaries, as though it contained 184.17 decigrams of pure silver. The sum to find the equivalent in these most dangerous silver-cum-

counter charge paper rupees is $\frac{2,962,084.3}{106.92 + 72\frac{1}{4}\%} = 16,083.4$ silver-cum-counter charge paper rupees.

III. The rate in British India on Argentina is 9 per cent. discount. The addition of a premium equivalent to the discount upon 2,962,084.3 decigrams of silver represented by 16,083.4 silver-cum-counter charge British Indian rupees, is found thus: $\frac{2,962,084.3 \times 100}{91} = 3,255,037$ decigrams of pure silver.

IV. The premium in paper for gold in Argentina is 180 per cent. To find the percentage discount at which the paper stands, the sum is $\frac{180 \times 100}{280} = 64.28$ per cent. discount: Ans.

The ratio between the metals is 40 of silver to 1 of gold. The mint issue weight of the Argentina peso is 14.516 decigrams of pure gold. Upon these conditions, to find the equivalent in pesos for 3,255,037 decigrams of silver,

the sum is $\frac{3,255,037}{14.516 - 64.28\% \times 40} = 15,677.7$ inconvertible

paper pesos based on gold. Each inconvertible paper peso at 64.28 per cent. discount is worth 5.186 decigrams of pure gold. Therefore, 15,677.7 pesos equal 81,304.5 decigrams of gold.

V. The rate in Argentina upon the U.S. Columbia is 3 per cent. premium. To find the bill which 81,304.5 decigrams of gold will purchase at this premium, the sum is $\frac{81,304.5 \times 100}{103} = 78,936.4$ decigrams of gold. The mint

issue weight of the Argentine sol is 225 decigrams of pure silver. It is at 150 per cent. premium in paper. In other words, the inconvertible paper is at a discount of 60 per cent. The ratio is 40. To find the paper sols equivalent to

78,936.4 decigrams of pure gold, the sum is $\frac{78,936.4}{225 - 60\% \div 40}$

= 35,082.8 inconvertible paper sols based on silver: Ans. Each paper sol on these conditions is worth only 2.25 decigrams of pure gold. 35,082.8 paper sols at 2.25 decigrams of gold each is 78,936.4 decigrams of gold. Silver being the standard, the equivalent to 78,936.4 decigrams of

gold at 40 parts of silver to 1 part of gold, gives 3,157,456 decigrams of silver.

This is the result in the equivalent of 35,082·8 Columbian inconvertible paper sols based on silver, by the arbitrated remittance of 73,224 decigrams of pure gold or £1000 from the British Isles. To compare this result with that produced by the direct rate, we shall find that the direct rate yielded 77,077 decigrams or its equivalent, the indirect remittance yielded 78,936·4 decigrams of gold or the equivalent. This shows that the indirect mode is better by 2·4 per cent. without allowances for time and commissions.

We will now look at this arbitration of exchange in the manner we did the first one. The letter X represents the equivalent fixed or absolute pars for the time being between the five great diverse intermediaries, the conditions of which have been described in the introduction to this last arbitrated working. The percentage premiums or discounts are applied as in the former example :—

London	X — 4 per cent.	discount	= X China.
China	X + 3	„ premium	= X British India.
British India	X — 9	„ discount	= X Argentina.
Argentina	X + 3	„ premium	= X U.S. Columbia.

In these interchanges of intermediaries we have London automatic gold for China automatic silver ; China automatic silver for British India silver-cum-counter charge paper ; British India silver-cum-counter charge paper for Argentina inconvertible paper based on gold ; Argentina inconvertible paper based on gold for U.S. Columbia inconvertible paper based on silver.

On looking at the chain rule statement, we find that the discounts amount to 13 per cent., or to the buyer of the bills 14·942 per cent. premium. The premiums amount to 6 per cent., or to the buyer of the bills a discount of 6·382 per cent. Deducting the discount from the premiums, a premium of 8·56 is left. This percentage, added to 73,224 decigrams of gold, gives 79,492 decigrams of gold. This is $\frac{1}{4}$ of 1 per cent. more than the actual working of the sums yielded.

SUGGESTIONS FOR THE CONSIDERATION OF THE STUDENTS OF THE MECHANISM OF THE INTERCHANGES OF THINGS, AND THE QUALITY AND FUNCTIONS OF MONEY.

Let it be particularly noted that the writer never uses the word money in any other sense than the standard substance appropriated to currency purposes.

I. Whether the mechanism of the interchanges of things between individuals and communities is not a most important branch of Sociology?

II. Whether this subject has ever been adequately dealt with by professional political economists?

III. Whether all or most economists do not admit that all interchanges of things should be carried out on the terms of barter?

IV. Whether it is not believed that they are now so carried on?

V. Whether the following are not the terms of barter virtually agreed to by nearly all economists. The value-giving factors—consisting mainly of past and present labour—embodied in anything, with or without the unearned increment, for the value-giving factors embodied in anything, with or without the unearned increment, and without the intervention of an intermediary?

VI. Whether there are not two values—a cost value and an exchange value—quite irrespective of prices?

VII. Whether for the purposes of interchanges it is not necessary that the thing produced should exchange for more than its cost value if there is to be any advantage derived from trade?

VIII. Whether the introduction of one or more intermediaries does not originate prices and rates of exchange of intermediaries?

IX. Whether the world at present has not seven intermediaries. I. automatic gold, II. automatic silver, III. gold-cum-coinage charge, IV. silver-cum-coinage charge, V. silver-cum-counter charge, VI. inconvertible paper based on gold, VII. inconvertible paper based on silver?

X. Whether it is not evident that if the whole world possessed one intermediary only in the shape of a scientific gold system, discarded monetary signs, and adopted one money weight measure, prices of things and the foreign and colonial rates of exchange of the one intermediary would be so simple that school children would understand them?

XI. Whether under such conditions prices throughout the whole would be a definite weight of pure gold, and comparative prices would be discerned at a glance; the fluctuation of exchange of the intermediary, definite weight of pure gold, perceivable also at a glance; and above all other considerations, commerce would be carried on upon the terms of barter?

XII. Whether it is a fact that so long as a country possesses an effective scientific monetary system the price of the thing priced is a weight of the pure standard substance, and that whether the price be a large or a small one, say a farthing or £1000 in the British Isles, the standard substance is as good as weighed out against the thing purchased?

XIII. Whether it is a fact that in interchanges of things between two countries, say A and B, there must be four prices and two rates of exchanges of monetary or currency intermediaries. Two prices in A, one of the thing sent to B and another of the thing received from B; and a rate of exchange between the intermediary in A for the intermediary in B. Two prices in B, one of the thing received from A and another of the thing sent to A, and a rate of exchange between the intermediary in B for the intermediary in A?

XIV. Whether the altered ratios between the intermediaries does not immediately affect the prices of things interchanged?

XV. Whether it is a fact that the individual, collective and universal interchanges of things ought to be, and one day may be, effected either by barter or by means of one intermediary of equivalent value to the things interchanged, and that then, and only then, the whole world's interchanges would be conducted upon the conditions of barter?

XVI. Whether it is a fact that at present individual, collective, and universal interchanges of things is effected either by barter or by means of seven intermediaries?

XVII. Whether these seven intermediaries do not present forty-nine different exchanges of intermediaries, whereas, if there was but one intermediary in the world, the variation would be a little more or less weight for a given weight?

XVIII. Whether the ratio of exchange on one intermediary could fluctuate much more than 1 per cent.?

XIX. Whether the ratio of exchange between the present seven intermediaries has not varied as much as 400 per cent. and is now near 200 per cent. in some places?

XX. Whether, owing to the widely fluctuating ratios at which five of the world's most important intermediaries have exchanged during the past twenty years, the internal prices of things in countries using the silver standard and in countries using inconvertible paper have governed their import and export prices; whilst import and export prices in countries using the gold standard have governed internal prices?

XXI. Whether since 1893, when British India's silver-cum-coinage charge standard was destroyed, the fictitious value of the silver-cum-counter charge intermediary in foreign and colonial transactions has not handicapped the exports from that country by from 30 to 70 per cent. compared with exports of a similar nature from the rest of the east and the countries of the west using an inconvertible paper currency?

XXII. Whether the experience of experts in the exchange of intermediaries, international and intercolonial traders, and financiers with seven intermediaries, five of which are of a

vastly different nature, should not have the serious attention of rulers, statesmen, and legislators ?

XXIII. Whether the observation of the Hon. T. B. Reed, Speaker of the House of Representatives in the United States of North America, "that the yellow men with the white money hold at their mercy the industries of the white men with the yellow money" is not a corollary in a terse form to the experience of the expert in the exchanges, the international and intercolonial trader, and the financier ?

XXIV. Whether a trace of this experience is to be found in the conclusions and recommendations of either the British Royal Gold and Silver Commission of 1886-9 or the British Agricultural Commission of 1893-7 Reports ?

MONEY.

I. Whether science does not demand that the definition of money should be limited to the standard substance, equivalent in exchange, and measure of value, in the shape of bullion or coins, appropriated to currency purposes ?

II. Whether the science of money does not demand that unless the substance selected as a measure of value and equivalent in exchange is unfettered and unfavoured by legislative enactments, it cannot be money ?

III. Whether, if weight alone without any other monetary sign had been the practice with money down the ages of the past, the world could have muddled itself over the subject of real money ?

IV. Whether it is possible to have a valueless thing as a measure of value ? or possible to have a gold standard without any gold ?

V. Whether it is possible to make a piece of paper, money ; or a counter, money ?

VI. Whether the acquisition and maintenance of an effective metal monetary system must not depend in most countries upon the state of its international and intercolonial trade ?

VII. Whether a people's standard substance and equivalent in exchange is not their most liquid wealth ?

VIII. Whether it is a fact that the possession and maintenance of a scientific monetary system depends upon the conversion of State or other notes which by law are constituted legal tender into the weight of standard substance promised, without question, delay, or expense, at the will of the holder of such credit instruments?

IX. Whether experience has not demonstrated that the only sure security for the encashment of legal tender notes payable on demand is the possession of the standard substance in the shape of coin or bullion wherewith such notes must be met in the time of the distrust of them?

X. Whether any other description of property as security for the encashment of legal tender notes, in the time of the distrust of them, is any better than a rotten reed to rely upon?

XI. Whether the fabrication and circulation of State or other equally trusted notes is not as sacred a trust for the whole nation as the function of coining money?

XII. Whether the vastly important use of notes for facilitating the interchanges of things should not be entirely secured by the issuer of the notes through the possession of the weight of standard substance indicated upon the notes?

XIII. Whether, if this be not done, it is not equivalent to eating the cake whilst indulging in the fancy of possessing it?

XIV. Whether it is to the interest of the financier to keep the standard substance in a cellar? or of the banker? or of the merchant? or of any other class of the community?

XV. Whether, if the habits in the British Isles so changed that Bank of England notes became obsolete and the reserve of the standard substance from that source ceased, it would become the duty of the State, by one device or another, to obtain and maintain a reserve of standard substance adequate to the requirements of internal and international interchanges of services and things?

XVI. Whether it is conceivable that a civilized people could go back to the interchanges of things by means of barter only? Imagine a drove of bullocks for some desired Stock Exchange interest-bearing security!

XVII. Whether it is conceivable that valueless counters could take the place of a substance of equivalent value in exchange (gauged by value-giving factors) for the thing bought or sold; or that such an intermediary would cause interchanges to be carried out on the conditions of barter?

XVIII. Whether the science of money and the science of credit are not distinct? The former the more particular possession of the money power, and the latter especially the possession of the banking power, of the world?

XIX. Whether the money power does not depend upon special knowledge, which in the main is possessed only by the magnates of this power, and consists in a "masterly skill in bullion and coin," and is manifest in movements of money about the world and the control of the exchanges of intermediaries in certain countries of the world?

XX. Whether the so-called mysteries in possession of the money power do not lie in the foreign and colonial exchanges of intermediaries?

XXI. Whether these are now being so unveiled to simple understandings that the repetition of Sydney Smith's saying, "As for currency and the exchanges, next to love and religion they fill the lunatic asylums," appears highly ridiculous?

XXII. Whether money does its work by its value and credit by its quantity?

XXIII. Whether at present the banking world is not entirely ignorant of the knowledge possessed by the money world?

XXIV. Whether this ignorance does not result from the setting up of a scarecrow by the money power, resulting in the banking power dealing with credit and the money power with money?

XXV. Whether there are not indications that in the near future the knowledge possessed by the money power will become the property of the banking power also, and that this combination may prove a mightier power than that of the money power alone?

XXVI. Whether it would not be a tremendous boon to

the money power, the banking power, in fact to all associations and individuals receiving interest on property in other countries, if the intermediary of each country could be kept within, say, a safe distance from metal points? Whether the combined operation of the money and banking powers could not effect this to the benefit of local industries and of the commerce of the world as well?

BIMETALLISM.

I. Whether the insistence upon a legislative fixture of ratio between the substances gold and silver with the view to make one permanent effective metal measure of value is not one of the most dangerous delusions that ever found lodgment in the brains of a sane man?

II. Whether the attempt at such "an unscientific, unnatural, and unworkable" scheme has not been of incalculable injury to the world?

III. Whether the attempt does not present itself to the ordinary mind of the character of the action of the king who took his seat by the sea and commanded the flowing waves not to touch his feet? God's order in nature makes little of man's legislative actions if they are not on the same lines.

IV. Whether a quietus to the cry of bimetallism should not be the fact. "That no two different substances can be exchanged for any length of time on parallel lines of quantities or values; neither can they be produced for any length of time on parallel lines of cost?"

V. Whether it is not unbecoming a people who have made up their minds upon the subject to coquet with such an "unnatural and unworkable" project?

The writer is deeply sensible that his work has been simply that of unveiling that which has been hidden from the mass of mankind. He has the good fortune to know a few able experts in the exchanges, any one of whom, he feels confident, if they had the time, could have produced a far more valuable Universal Cambist than he has been able to com-

plete. Such as his work is, he is happy to contribute it to the world, with thankfulness that the unit of weight system first appreciated by him in 1875 has enabled him to accomplish it. He would commend the book to the educationists, with the hope that he may live to see the subject become a necessary and practical part of popular education.

N.B.—*October 8th*, 1897. Between the first day of this year and this date the ratio of silver to one of gold has fluctuated from 31·76 on January 7th to 39·70 on September 1st and 2nd: a rise in the silver price of gold of 25 per cent. or a fall in the gold price of silver of 20 per cent. Between September 6th and October 6th the average of the twenty-seven days has been 36·40 of silver to 1 of gold, showing a rise of 14·6 per cent. on the January price of gold of this year.

At a ratio of 39·70 to 1, compared with the state of the British Indian silver-cum-counter charge intermediary at the same time, the British Indian exports were handicapped by something like 70 per cent. To-day, with silver at 36·27 to 1, and the Indian rate $15\frac{2}{3}\frac{1}{2}$ pence, the British Indian export trade is handicapped by about 60 per cent.

The following is a quotation from Archbishop Whately's "Easy Lessons on Money Matters." "The rudiments of sound knowledge concerning these (subjects) may, it has been found by experience, be communicated at a very early age. . . . Those, therefore, who are engaged in conducting, or in patronizing or promoting education, should consider it a matter of no small moment to instil, betimes, just notions on subjects with which all must in after life be practically conversant, and in which no class of men, from the highest to the lowest, can, in such a country as this at least, be safely left in ignorance or in error." This is quoted in Jevons's Political Economy, 1878, with the observation that he learned his first ideas of political economy from a copy of these "Easy Lessons on Money Matters."

Part II.

SECTION I.

COINAGE WEIGHT OF PRESENT AND PRO-
SPECTIVE GOLD AND SILVER COINS.
WEIGHTS BY WHICH GOLD AND SILVER
ARE SOLD.

THE WORLD'S SEVENTEEN
PRESENT AND PROJECTED GOLD
MONETARY SYSTEMS.

WITH A CONSTANT IN EACH TO DETERMINE
THE RATIO BETWEEN GOLD AND SILVER ON THE PRICE
OF SILVER OF THE DAY.

TABLE XI.

WEIGHTS OF THE WORLD'S PRESENT AND PROSPECTIVE GOLD AND SILVER COINS.

Table of weights of gold and silver coins on issue from the mints. These coins are, or should be, current in the World's present twenty-nine monetary systems. Col. I.—Pure gold or pure silver in 1000 parts of metal. Col. II.—Proportion of silver to 1 of gold between the weights of both indicated by one money of account under mintage regulations. Col. III.—Names of the coins. Col. IV.—Total weight and weight of pure gold (g.) and pure silver (s.) in decigrams. Col. V.—Total weight and weight of pure gold and pure silver in troy grains.

	Col. I.	Col. II.	Col. III.	Col. IV. Decigrams.		Col. V. Grains.	
				Total weight.	Weight of pure metal.	Total weight.	Weight of pure metal.
I.	875'0	15'0	Egyptian pound ...	g. 85'000	74'375	131'1749	114'7781
	900'0	—	10 piastres ...	s. 125'000	112'5000	192'9043	173'6139
II.	916'667	14'287	British pound ...	g. 79'881	73'224	123'2740	113'0016
	925'0	—	1 shilling ...	s. 56'552	52'310	87'2250	80'72937
III.	916'667	15'1	Turkish pound ...	g. 72'16	66'147	111'3598	101'0798
	830'0	—	20 piastres ...	s. 240'55	199'650	371'2313	308'1168
IV.	916'667	14'09	Portuguese 5-milreis ...	g. 88'675	81'285	136'8460	125'4425
	916'667	—	5 testoons ...	s. 125'000	114'583	192'9043	176'8284
V.	917'0	14'4	Uruguay 5-peso ...	g. 84'850	77'807	130'9435	120'0750
	900'0	15'5	1 peso ...	s. 250'000	225'000	385'2087	347'2878
VI.	916'667	14'3	Newfoundland 2-dollars ...	g. 33'280	30'507	51'35886	47'07895
	925'0	—	50 cents ...	s. 117'820	108'983	181'8234	168'1871
VII.	900'0	16'0	United States 5-dollars ...	g. 83'591	75'232	129'0000	116'00985
	900'0	—	1 dollar ...	s. 267'290	240'567	412'5000	371'2514
VIII.	900'0	15'5	Argentine Republic 5-dollars ...	g. 80'645	72'5805	124'5415	112'00875
	900'0	—	1 dollar or peso ...	s. 250'000	225'000	385'2087	347'2278
IX.	—	—	Cuba ...	—	—	—	21'5019
X.	900'0	16'39	Chili 5-pesos ...	g. 76'265	68'639	117'6941	105'9253
	900'0	—	1 condor ...	g. 5'991035	5'49178	9'245578	8'5751138
	900'0	—	1 peso ...	s. 250'000	225'000	385'2087	347'2278
XI.	916'667	14'22	Brazil 10-milreis ...	g. 89'648	82'178	138'34793	126'81957
	916'667	—	2 milreis ...	s. 255'000	233'750	393'5249	360'7311
XII.	983'0	15'6	Netherlands 10-guilders ...	g. 67'20	60'48	102'6682	93'3348
	945'0	—	1 guilder or florin ...	s. 100'000	94'500	154'3235	145'8357
XIII.	900'0	14'88	Danish 20-crowns ...	g. 89'606	80'645	138'2831	124'45442
	800'0	—	2 crowns ...	s. 150'000	120'000	231'4852	185'1882
XIV.	900'0	13'95	German 20-marks ...	g. 79'65	71'6846	122'917896	110'626808
	900'0	—	1 mark ...	s. 55'555	50'000	85'7359	77'1617
XV.	900'0	15'5	French 20-francs ...	g. 64'516	58'065	99'56334	89'60701
	900'0	—	1 franc ...	s. 50'000	45'000	77'0417	69'4455
XVI.	A weight	No coin	Shanghai tael ...	s. —	334'6254	—	516'40584
XVII.	900'0	—	Trade dollar ...	s. 272'156	244'940	420'0000	378'0000
XVIII.	902'778	16'0	Mexican dollar ...	s. 270'73	244'40918	417'7847	377'18098
	875'0	—	16 pesos ...	g. 270'643	236'813	417'6657	375'45753
XIX.	945'0	—	Java dollar or 2½ guilders ...	s. 250	236'25	385'8087	364'589'5
XX.	900'0	16'173	Japan 1-yen ...	s. 269'564	242'677	416'0000	374'4000
	—	—	5 yens ...	g. 83'3335	75'000	128'60317	115'74262
	900'0	—	1 yen ...	g. 83'3333	7'5	12'86029	11'57426
XXI.	900'0	15'79	Philippine dollar ...	s. 259'600	233'64	400'6253	360'5628
	875'0	—	1 peso ...	g. 16'915	14'796	26'0961	22'83705
XXII.	900'0	15'5	Peruvian sol ...	s. 250'000	225'000	385'2087	347'2278
	—	—	10 sols ...	g. 161'290	145'161	248'90837	224'01753
XXIII.	—	—	Tripoli mahbub ...	s. —	202'957	—	313'2000
XXIV.	868'056	15'0	Russian rouble ...	s. 199'957	179'961	308'5806	277'7221
	900'0	—	5 roubles ...	g. 64'510	58'059	99'5540	89'5986
	900'0	—	1 rouble ...	g. 8'60134	7'741206	13'2739	11'946505
XXV.	910'0	—	Siamese tical ...	s. 151'805	133'670	234'2711	206'2850
XXVI.	900'0	15'3	Austrian florin ...	s. 123'457	111'111	190'5231	171'4708
	900'0	—	8 florins ...	g. 64'516	58'065	99'563349	89'60701
	900'0	—	1 crown ...	g. 3'387534	3'04878	5'22776	4'700486
XXVII.	916'667	15'0	Indian rupee ...	s. 116'638	106'918	180'0000	165'0000
	916'667	—	15 rupees ...	g. 116'638	106'918	180'0000	165'0000
	916'667	—	1 rupee ...	g. 5'32537	4'88158	8'21831	7'53344
XXVIII.	900'0	13'37	Persian kran ...	s. 46'0034	41'4298	71'04	63'936
	990'0	—	1 thoman ...	g. 34'667	34'321	53'49032	52'90536
XXIX.	900'0	15'86	Tunis 1-piastre ...	s. 30'970	27'875	47'7939	43'0145
	900'0	—	50 piastres ...	g. 97'600	87'840	150'61973	135'55776
XXX.	9'16	—	Bolivia ...	s. 225'	202'5	347'2278	312'50504

TABLE XII.

GOLD MONETARY SYSTEMS.

Weights by which pure gold (g.) and pure silver (s.) are sold in the world's gold monetary systems. Also monetary signs for one kilogram, one pound avoirdupois, and one troy ounce of pure gold.

Name of system.	Name of weight.	Grams.	Monetary signs for names of weights.	Monetary signs for one kilogram.	Monetary signs for 1 lb. avoirdupois, or 7000 troy grains, or 453.59242768 grams.	Monetary signs for 480 troy grains, or 311.035807 decigrams.
I. Egyptian ...	Mirkal	= 4'68004192	Pias. 62'924933	E £134'453769	E £60'987217	E £4'172000
II. British ...	Std. troy oz. g.	= 28'51152402	£3'89375	£136'566666	£61'946022	£4'247741
III. Turkish ...	Cheky	= 28'77071969	T £48'416494	T £151'179139	T £68'573750	T £4'702214
IV. Portuguese ...	Kilogram	= 1000	MI. 615'115847	MI. 615'115847	MI. 279'012123	MI. 19'132325
V. Uruguayan ...	"	= 320'25894652	P. 642'611988	P. 642'611988	P. 291'484076	P. 19'987533
VI. United States, N.A.	Troy oz.	= 31'10348075	D. 20'671835	D. 664'614126	D. 301'464255	D. 20'671901
VII. Argentine ...	Kilogram	= 1000	P. 688'890534	P. 688'890534	P. 312'475685	P. 21'426917
VIII. Cuban ...	"	= "	" 717'720757	" 717'720757	" 325'553142	" 22'323660
IX. Chilean, old ...	"	= "	" 728'597368	" 728'597368	" 330'421285	" 22'661925
X. " new ...	"	= "	" 910'651288	" 910'651288	" 825'947621	" 56'630590
XI. Russian, old ...	Zolotnick	= 4'265798317	R. 3'673675	R. 861'192925	R. 390'630588	R. 27'902240
XII. " new ...	"	= "	" 3'303017	" 1291'788385	" 585'945430	" 40'179244
XIII. Brazilian ...	Kilogram	= 1000	MI. 1216'879000	MI. 1216'879000	MI. 551'966027	MI. 37'849073
XIV. Japanese, old ...	100 monmes	= 375	Y. 250	Y. 666'666666	Y. 302'394954	Y. 22'357205
XV. " new ...	"	= "	" 500	" 1333'333333	" 604'789908	" 40'174410
XVI. Austrian, old ...	† kilogram	= 500	Fl. 1688'888888	Fl. 1366'666666	Fl. 624'944789	Fl. 42'853502
XVII. " crown, new ...	"	= "	" 1640	Cr. 3280	Cr. 1487'783357	Cr. 102'019761
XVIII. British India, old ...	Tola	= 116'63805283	R. 163'60000	R. 1403'075529	R. 636'505270	R. 43'636632
XIX. " new ...	"	= "	G. 23'893262	G. 2048'513929	G. 929'190355	G. 637'16114
XX. Dutch ...	Kilogram	= 1000	Kr. 1240'000109	G. 1653'440056	G. 749'988203	G. 51'427878
XXI. Scandinavian ...	†	= 500	Mk. 2790	Kr. 1240	Kr. 1124'909238	Kr. 77'112081
XXII. German ...	Kilogram	= 1000	Fr. 3444'4444	Mk. 2790	Mk. 1265'524776	Mk. 86'779126
XXIII. French ...	"	= 1000	Fr. 3444'4444	Fr. 3444'4444	Fr. 1562'356594	Fr. 107'134546

THE WORLD'S SEVENTEEN PRESENT AND POSSIBLE FUTURE GOLD MONETARY SYSTEMS.

I. EGYPTIAN MONETARY SYSTEM.

Pound.

		Gross.	Fineness.	Pure.	Monetary Sign for '1.
Decigrams	...	85	875	74'375	13'445378 och.
Grains troy	...	131'174958	"	114'778088	8'712464 "

MONEY TABLE.

1 ochr el guerches.
 10 " = 1 piastre.
 100 piastres = 1 Egyptian pound.

TABLE OF MONEY WEIGHTS.

1 kamha.
 4 kamhas = 1 kirat.
 16 kirats = 1 dirhem.
 12 dirhems = 1 onckie.

Gold and silver are sold per mitkal or 46'8004191808 decigrams, or 72'2240748 troy grains. Since one mitkal equals 96 kamhas,

1 decigram = 2'0512636785 kamhas.
 1 troy grain = 1'3291966739 "
 1 kamha = '4875043665 decigram
 " = '7523341125 troy grain.

One onckie is eight times the weight of a mitkal, or 374'4033534464 decigrams.

The constant 629'24936 ochrs being divided by the price of a mitkal of gold or silver, in ochr el guerches gives the ratio between the metals.

COINS AND MONEYS OF ACCOUNT OF EGYPT.

S.C. Standard coins.		T.C. Token coins.	P.G. Pure gold.
Pound	P.G. S.C.	74·37 decigrams	114·77 grains P.G.
$\frac{1}{2}$ "	"	37·19 "	57·39 "
20 och.	$\frac{1}{80}$ th silver T.C.	1·49 "	2·29 "
10 "	"	·74 "	1·15 "
5 "	"	·37 "	·57 "
2 "	"	·15 "	·23 "
1 "	$\frac{1}{1000}$	·074 "	·11 "
$\frac{1}{2}$ "	$\frac{1}{2000}$	·637 "	·057 "
$\frac{1}{4}$ "	$\frac{1}{4000}$	·018 "	·028 "
$\frac{1}{8}$ "	$\frac{1}{8000}$	·0093 "	·014 "
$\frac{1}{16}$ "	$\frac{1}{16000}$	·0046 "	·0071 "

II. BRITISH MONETARY SYSTEM.

Pound or Sovereign.

	Gross.	Fineness.	Pure.	Monetary Sign for '1.
Decigrams ...	79·881	$\frac{1}{2}$	73·22381772	3·277622 pence
Troy grains ...	123·274478	"	113·001605	2·123863 "

MONEY TABLE.

12 pence = 1 shilling.
20 shillings = 1 pound.

WEIGHT TABLE—TROY.

24 grains = 1 pennyweight.
20 pennyweight = 1 ounce.
12 ounces = 1 pound.

The following are the coins and moneys of account of the British Isles, Australasia, many parts of the British Empire, and the British islands of the Atlantic. The constant 942·9955 pence, being divided by the price of silver in pence, gives the ratio of silver to that of gold. S.C., Standard coins. T.C., Token coins.

PURE GOLD.

Pound S.C.		73·22 decigrams	113· troy grains.
$\frac{1}{2}$ "	"	36·6 "	56·5 "
5 shillings	$\frac{1}{4}$ silver T.C.	18·3 "	28·25 "
4 "	$\frac{1}{8}$ " "	14·6 "	22·6 "
$\frac{2}{6}$ "	$\frac{1}{8}$ " "	9·15 "	14·12 "
$\frac{2}{-}$ "	$\frac{1}{16}$ " "	7·32 "	11·3 "
1/-	$\frac{1}{32}$ " "	3·66 "	5·65 "
6 pence	$\frac{1}{48}$ " "	1·83 "	2·82 "
3 "	$\frac{1}{96}$ " "	·91 "	1·41 "
1 penny	$\frac{1}{192}$ bronze "	·30 "	·47 "
$\frac{1}{2}$ "	$\frac{1}{384}$ " "	·15 "	·23 "
$\frac{1}{4}$ "	$\frac{1}{768}$ " "	·076 "	·12 "
$\frac{1}{8}$ "	$\frac{1}{1536}$ " "	·038 "	·059 "
$\frac{1}{16}$ "	$\frac{1}{3072}$ " "	·019 "	·029 "
$\frac{1}{32}$ "	$\frac{1}{6144}$ " "	·0095 "	·015 "
$\frac{1}{64}$ "	$\frac{1}{12288}$ " "	·0047 "	·0073 "

1 decigram = 1·54323563905 troy grains.

1 troy grain = ·64798918240 decigram.

Gold is sold per standard ounce of 440 troy grains of pure gold, and silver per standard ounce of 444 troy grains of pure silver. The constant 942·9955, being divided by the price of silver in pence, gives the ratio between the metals. The constant 920·341, being divided by the price in pence of an ounce of Mexican dollars, gives the ratio established between the metals, since an ounce of Mexican dollars contains 433·333 grains of pure silver. The British mint coins £46 14s. 6d. out of 1 lb. troy, or 5760 troy grains of standard gold, which is $\frac{1}{11}$ fine. A pound troy of pure gold is coined into £50 19s. 5d. There is no charge for coinage. The Bank of England almost invariably takes in standard gold, or 440 troy grains of pure gold at £3 17s. 9d. per ounce, and with rare exceptions, parts with standard gold at £3 17s. 10½d. per ounce. £3 17s. 10½d. is the monetary sign in the British Isles, Australasia, and elsewhere in the empire for 440 grains of pure gold. The British and Australian mints are open to the unlimited reception of gold from any place or person. Of the metals gold only is unlimited legal tender. Forty shillings in silver only are legal tender in one payment. Twelve pence only are legal tender in one payment.

The tolerance on the pound is 0·4 of a grain. The pound is not legal tender when its weight is below 112·2921 grains of pure gold. The Bank of England does not re-issue a sovereign when it is below the weight of 122·5 grains of gold and alloy. Any one presenting Bank of England notes at the Bank of England can obtain gold coins of legal weight in exchange for the same without question, delay, or expense. Silver is purchased for coinage in the British Isles at the discretion of the head of the mint, and the profit, when such accrues, is the profit of the whole people of the British Isles. The bronze coinage is dealt with in the same manner. There is a coinage charge upon gold in Australasia of about 1 per cent.

Gold is unlimited legal tender in the following British possessions; (a) denotes the possession of a mint:—

Antigua, Ascension, Australasia (a), Bahama Islands, Barbadoes, Bermuda Islands, British Guiana, Basutoland,

Bechuanaland, Canada, Channel Islands, Cape of Good Hope, Cyprus, Dominica, Falkland Islands, Fiji, Gambia, Gold Coast, Grenada, Jamaica, Lagos, Malta, Montserrat, St. Kitts, Natal, New Guinea, Nevis, Royal Niger Company Territories, Sandwich Islands, Sierra Leone, St. Lucia, St. Helena, Tobago, Trinidad, Transvaal, Tristan d'Acunha, Virgin Islands, Zululand, Turk's Islands.

MONETARY SIGNS FOR WEIGHTS OF PURE GOLD.

$\frac{1}{100}$	of a French centime	...	...	...	...	'000448
"	" German pfennig	...	...	...	...	'000553
"	" Scandinavian ore	...	...	...	...	'000622
"	" Dutch cent	...	...	...	...	'000933
1	" Brazilian reis	...	...	...	...	'0001268
$\frac{1}{100}$	" Chilian centavo	...	...	...	...	'002118
"	" Cuban cent	...	...	...	...	'0021501
"	" Argentine centesimo	...	...	...	...	'00224
"	" U.S.A. cent	...	...	...	...	'002321
"	" Newfoundland cent	...	...	...	...	'002354
"	" Uruguayan centesimo	...	...	...	...	'002401
1	" Portuguese reis	...	...	...	...	'0002508
1	" Turkish para	...	...	...	...	'0002552
$\frac{1}{1000}$	" British penny	...	...	...	...	'0004708
$\frac{1}{100}$	" $\frac{1}{2}$ an Egyptian piastre	...	...	...	...	'0005738

III. TURKISH MONETARY SYSTEM.

Pound.

	Gross.	Fineness.	Pure.	Monetary Sign for "r."
Decigrams ...	72'16	$\frac{1}{2}$	66'1466666	60'471678 paras.
Troy grains ...	111'3598	"	102'079887	39'1848 "

MONEY TABLE.

40 paras = 1 piastre.
100 piastres = 1 pound.

WEIGHT TABLE.

4 kamhas = 1 kirat.
16 kirats = 1 dirhem.
 $1\frac{1}{2}$ dirhem = 1 mitkal.

Gold and silver are sold per cheky, or 3202'5894 decigrams, or 4942'3502 troy grains. The constant 4841'6490 piastres, divided by the price of silver in piastres, will give the ratio. As one cheky contains 6400 Turkish grains,

1 decigram	= 1'9983828928 Turkish grains.
1 troy grain	= 1'2949304968 "
1 Turkish grain	= '5004046039 decigram.
"	= '7722422188 troy grain.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard Coins. T.C., Token Coins.

PURE GOLD.

Pound	S.C. P.G.		66·15	decigrams	102·08	troy grains
"	$\frac{1}{2}$	" "	33·07	"	51·04	"
"	$\frac{1}{4}$	" "	16·53	"	25·51	"
Piastres	20 $\frac{1}{2}$	T.C. silver	13·23	"	20·41	"
"	10 $\frac{1}{10}$	" "	6·61	"	10·21	"
"	5 $\frac{1}{20}$	" "	3·31	"	5·104742	"
"	2 $\frac{1}{40}$	" "	1·65	"	2·55	"
"	2 $\frac{1}{80}$	" "	1·32	"	2·04	"
"	1 $\frac{1}{2}$	" "	·99	"	1·53	"
"	1 $\frac{1}{100}$	" "	·66	"	1·021	"
"	$\frac{1}{2}$ 200	" bronze	·33	"	·51	"
"	$\frac{1}{4}$ 400	" "	·16	"	·25	"
Paras	5800	" "	·082	"	·13	"
"	14000	" "	·016	"	·025	"
"	$\frac{1}{2}$ 8000	" "	·0082	"	·013	"
"	$\frac{1}{4}$ 18000	" "	·0041	"	·0064	"

The medjidie is one pound ; the zarim, half a pound ; the tyeirek, quarter of a pound : these are gold coins. Coinage is exclusively a State function. The State receives fine gold at 47 $\frac{1}{2}$ piastres per dram, and fine silver at 3 piastres 2 $\frac{1}{2}$ centimes per dram, and parts with the same at 48 piastres and 3 piastres 12 $\frac{1}{2}$ centimes respectively. One kilo, or 400 drams of pure gold, is coined into 192 Turkish pounds. An oka of pure silver is coined into 62 $\frac{1}{2}$ pieces of 20 piastres each. The tolerance on gold is 2 per mille ; on silver coins, 3 per mille. The charge for coinage of gold is 1 per cent. The dram weight is divided into 16 kars, or 64 grains.

The Turkish piastre is the basis of the metal currency of Acre, Aleppo, Bagdad, Broussa, Damascus, Smyrna, and Tripoli. At Bussorah the Persian toman forms a basis of reckoning the value of moneys.

IV. PORTUGUESE MONETARY SYSTEM.

		<i>Milreis.</i>			
	Gross.	Fineness.	Pure.	Monetary Sign for 'r.	
Decigrams ...	17·735	916·637	16·2570834	61·511648	reis.
Troy grains ...	27·3965	"	25·088524	39·858849	"

MONEY TABLE.

1000 reis = 1 milreis.

WEIGHT TABLE.

Same as France.

Gold and silver are sold by the kilo or 15432·35639 troy grains. The constant 615·11646 milreis, divided by the price of silver in milreis, gives the ratio between gold and silver.

Gold coins : corôa of 10,000 reis, meia corôa of 75,000 reis, quintos de corôa of 2000, one-tenth of corôa of 1000 reis ; peca, 8000 reis ; meia, 4000. British sovereigns taken at 4500 reis, and half-sovereign, 2250 reis.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard Coins. T.C., Token Coins.

PURE GOLD.

10 milreis S.C. P.G.	162·57	decigrams	250·88	troy grains
5 " " "	81·28	"	125·44	"
1 " " "	16·25	"	25·09	"
500 reis $\frac{1}{2}$ " T.C. Silver	8·13	"	12·54	"
200 " $\frac{1}{4}$ " "	3·25	"	5·02	"
100 " $\frac{1}{8}$ " "	1·62	"	2·51	"
50 " $\frac{1}{16}$ " "	0·81	"	1·25	"
40 " $\frac{1}{32}$ " "	·65	"	1·00	"
20 " $\frac{1}{64}$ " "	·32	"	·50	"
10 " $\frac{1}{128}$ " "	·16	"	·25	"
5 " $\frac{1}{256}$ " "	·081	"	·135	"
3 " $\frac{1}{512}$ " "	·048	"	·075	"
1 " $\frac{1}{1024}$ " "	·016	"	·025	"
$\frac{1}{2}$ " $\frac{1}{2048}$ " "	·0081	"	·012	"
$\frac{1}{4}$ " $\frac{1}{4096}$ " "	·0041	"	·0062	"

The coinage charge on gold is one milreis per kilo, which is a trifle more than $\frac{1}{4}$ per cent., but the mintage is sometimes undertaken gratuitously. The mint buys gold, $\frac{11}{12}$ fine, at 563·856 milreis per kilo, which is 615·115 milreis per kilo of pure gold.

The monetary system is at present displaced by inconvertible paper. It is, or should be, in use in Angola, Cape Verde Islands, Delagoa Bay, Guinea, Mozambique, Principe, Sofala, St. Thomas, and Ziglunchor.

V. URUGUAY MONETARY SYSTEM.

Peso.

	Gross.	Fineness.	Pure Gold.	Monetary Sign for 'i.
Decigrams ...	16·97	917	15·56149	6·42612 centesimos.
Troy grains ...	26·1887	"	24·015034	4·164058 "

MONEY TABLE.

100 centesimos = 1 peso.

WEIGHT TABLE.

See FRANCE.

Gold and silver are sold per kilo or 15432·35639 troy grains. The constant 642·61198 peso, being divided by the price of silver in pesos, gives the ratio.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard Coins. T.C., Token Coins.

PURE GOLD.

Peso	S.C. P.G.		15·56	decigrams	24·01	troy grains
$\frac{1}{2}$ T.C. Silver			7·78	"	12 01	"
Cents 40 T.C. "			6·22	"	9·60	"
" 25 $\frac{1}{2}$ " "			3·89	"	6·04	"
" 20 $\frac{1}{2}$ T.C. bronze			3·11	"	4·80	"
" 10 $\frac{1}{2}$ " "			1·55	"	2·40	"
" 5 $\frac{1}{2}$ " "			·78	"	1·20	"
" 2 $\frac{1}{2}$ " "			·39	"	·60	"
" 1 $\frac{1}{2}$ " "			·15	"	·24	"
" $\frac{3}{4}$ " "			·077	"	·12	"
" $\frac{1}{2}$ " "			·039	"	·060	"
" $\frac{1}{4}$ " "			·019	"	·030	"
" $\frac{1}{8}$ " "			·0099	"	·015	"
" $\frac{1}{16}$ " "			·0049	"	·0075	"
" $\frac{1}{32}$ " "			·0025	"	·0037	"

This monetary system is displaced by inconvertible paper.

VI. UNITED STATES N.A. MONETARY SYSTEM.

Dollar.

	Gross.	Fineness.	Pure Gold.	Monetary Sign for 'i.
Decigrams ...	16·718	$\frac{9}{10}$	15·046308815	6·646148 cents.
Troy grains ...	25·80	"	23·22	4·306632 "

MONEY TABLE.

100 cents = 1 dollar.

MONEY WEIGHT TABLE.

24 grains = 1 pennyweight.
 20 pennyweights = 1 ounce.
 12 ounces = 1 pound troy.

Gold and silver are sold by the troy ounce of 480 grains of pure metal. The constant 2067·1834 cents, divided by the price of silver of the day, gives the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

		S.C.	300·92	decigrams	464·4	troy grains
20	dollars		150·92		232·2	
10	"	"	75·23	"	116·1	"
5	"	"	37·61	"	58·05	"
2½	"	"	15·04	"	23·22	"
1	"	silver T.C.	7·52	"	11·61	"
50	cents	½	3·76	"	5·80	"
25	"	¼	1·50	"	2·32	"
10	"	10	·75	"	1·16	"
20	"	5	·45	"	·69	"
3	"	"	·45	"	·69	"
3	"	bronze	·15	"	·23	"
1	"	100	·075	"	·12	"
½	"	200	·037	"	·060	"
¼	"	400	·018	"	·030	"
⅛	"	800	·0094	"	·015	"
1⁄16	"	1600	·0047	"	·0072	"
1⁄32	"	3200	·0023	"	·0036	"
1⁄64	"	6400				

One pound troy, or 5760 grains, of standard gold is coined into 223·2558 dollars; 5760 grains of pure gold are coined into 248·147 dollars; 43 troy ounces, 900 fine or 18,576 grains of pure gold, are coined into 800 dollars. The mints are open to the unlimited reception of gold from any person or place. Transmission charge on gold to Europe less than ⅜ per cent.

By act of February 12th, 1873, the tolerance in fineness of ingots. Gold ·001, silver ·003. By weight of coins, by the piece.

Gold, \$20 and \$10, ½ grain; \$½, ⅓ ¼ ⅛ ⅞ ¼ grain.
Silver, \$1, ⅓ ¼ 1⁄16. 1½ grains per piece.

Least current weight for gold only. Gold coin when reduced by natural abrasion not more than ½ of 1 per cent. after circulation of twenty years, as shown by the date of coinage, shall be received at their nominal value by the U.S.A. Treasury.

The monetary system of Liberia is the same as that of the United States, N.A.

VII. ARGENTINE REPUBLIC MONETARY SYSTEM.

Peso.

		Gross.	Fineness.	Pure Gold.	Monetary sign for 'r.
Decigrams	...	16.129	$\frac{9}{10}$	14.516129032	6.888930 centavos
Troy grains	...	24.8908	"	22.401743	4.46393 "

MONEY TABLE.

100 centavos = 1 peso.

MONEY WEIGHT TABLE.

See FRANCE.

The constant 688.888888 peso divided by the price of a kilogram of silver in pesos, gives the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

Argentino	5 Pesos	S.C.	72.58	decigrams	111.008	troy grains
$\frac{1}{2}$ "	$2\frac{1}{2}$ "	"	36.29	"	55.50	"
Peso	1	silver T.C.	14.51	"	22.40	"
Centavos	$50\frac{1}{2}$ peso	"	7.26	"	11.20	"
"	$20\frac{1}{2}$ "	"	2.90	"	4.48	"
"	$10\frac{1}{10}$ "	"	1.45	"	2.24	"
"	$5\frac{1}{20}$ "	"	.72	"	1.12	"
"	$2\frac{1}{40}$ bronze	"	.29	"	.44	"
"	$1\frac{1}{80}$ "	"	.14	"	.22	"
"	$\frac{1}{2}$ $\frac{200}{1000}$	"	.072	"	.11	"
"	$\frac{1}{4}$ $\frac{400}{1000}$	"	.036	"	.056	"
"	$\frac{1}{8}$ $\frac{800}{1000}$	"	.018	"	.028	"
"	$\frac{1}{16}$ $\frac{1600}{1000}$	"	.0091	"	.014	"
"	$\frac{1}{32}$ $\frac{3200}{1000}$	"	.0045	"	.0070	"
"	$\frac{1}{64}$ $\frac{6400}{1000}$	"	.0022	"	.0035	"

At present the currency consists of inconvertible paper. The Hayti gourde and the Paraguay coin are of the same weight.

VIII. BRAZIL REPUBLIC MONETARY SYSTEM.

Milreis.

		Gross.	Fineness.	Pure Gold.	Monetary sign for 'r.
Decigrams	...	8.9648	$\frac{11}{12}$	8.21779167	121.687202 reis.
Troy grains	...	13.83487	"	12.681957	78.852184 "

MONEY TABLE.

1000 reis = 1 milreis.

MONEY WEIGHT TABLE.

See FRANCE.

The constant 1216·8733 mil., being divided by the price of a kilo of silver in milreis, gives the ratio between gold and silver.

This system is displaced at present by inconvertible paper.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

Milreis	20 S.C.			164·35	decigrams	253·64	troy grains
"	10	"		82·17	"	126·82	"
"	5	"		32·87	"	63·41	"
"	2	"		16·43	"	25·36	"
"	1	"		8·21	"	12·68	"
Reis	500 $\frac{1}{2}$	M.	"	4·11	"	6·34	"
"	200 $\frac{1}{4}$	"	"	1·64	"	2·53	"
"	100 $\frac{1}{8}$	"	"	·82	"	1·26	"
"	200 $\frac{1}{4}$	"	nickel	·41	"	·63	"
"	100 $\frac{1}{8}$	"	"	·20	"	·32	"
"	40 $\frac{1}{25}$	"	bronze	·32	"	·51	"
"	20 $\frac{1}{50}$	"	"	·164	"	·25	"
"	10 $\frac{1}{100}$	"	"	·082	"	·12	"
"	1 $\frac{1}{1000}$	"	"	·0082	"	·012	"
"	$\frac{1}{2}$ $\frac{1}{2000}$	"	"	·0041	"	·0063	"
"	$\frac{1}{4}$ $\frac{1}{4000}$	"	"	·0020	"	·0031	"

One kilogram of fine gold is coined into 1216·875 milreis. There is an export duty in Brazil of $2\frac{1}{2}$ per cent. on gold and silver. Customs duties are payable in gold in Rio de Janeiro.

IX. RUSSIAN MONETARY SYSTEM.

Rouble.

	Gross.	Fineness.	Pure Gold.	Monetary sign for 'r.
Decigrams ...	8·60134	$\frac{9}{10}$	7·741206	12·917884 copecks.
Troy grains ...	13·273894	"	11·9465049	8·554803 "

MONEY TABLE.

100 copecks = 1 rouble.

MONEY WEIGHT TABLE.

1 dolis.
 96 dolis = 1 zolotnick.
 3 zolotnick = 1 lolti.
 8 " = 1 lana.
 12 lanas or = 1 funt or pound.
 32 lolti

Gold and silver are sold per zolotnick or 42·6579897044 decigrams or 65·83132 troy grains. Since one zolotnick equals 96 dolis,

1 decigram	= 2'2504580092 dolis.
1 troy grain	= 1'4582724454 „
1 dolis	= 4443539919 decigram.
„	= '6857429167 troy grain.

The constant 551'05 copecks, being divided by the price of a zolotnick of silver in copecks, will give the ratio between the metals. The pure gold in the rouble weighs 17'42 dolis.

In 1873 the ratio between the metals was about sixteen parts of silver to one part of gold. It is now forty parts of silver to one part of gold, with every probability of a further considerable rise. With the exception of China and Mexico, both of which possess effective silver systems, though the latter has it in combination with a coinage charge, the world, it would appear, is shaping its practice with a view to obtain in the course of time an effective gold standard. Peru and Costa Rica have closed their mints against the reception of silver from the public. Russia, Austria-Hungary, Japan, and Chili have scaled down their gold weights to bring them into nearer touch with the present ratio between the metals. Such foreign debts as these countries have incurred in gold and the annual interest upon them must be met at the old ratio between the metals. It will be of interest to state these weights.

Decigrams.

	Debt weight.	Commercial weight.
Russia	11'6118	7'7412
Austria-Hungary ...	6'0975	3'0487
Japan	15'0000	7'5000
Chili	13'7277	5'4917

Austria-Hungary has given the name crown to the lesser weight, the heavier being gulden or florin. Chili has named the lesser weight condor, the heavier being peso. In Russia the term rouble is used for both weights, and in Japan the term yen is used for both weights. These four projects, like that attempted with the British Indian currency, are in various stages to the desired goal, and time will show when and how, if ever, that goal is reached. It is one thing temporarily to gain, and quite another thing to permanently retain, a scientific automatic gold monetary system.



COINS AND MONEYS OF ACCOUNT.
S.C., Standard. T.C., Token Coins.

PURE GOLD.

		S.C.		decigrams	11'94	troy grains
1	rouble		7'74			
75	copecks	$\frac{3}{4}$	5'80	"	8'95	"
50		$\frac{2}{3}$	3'87	"	5'97	"
40		$\frac{2}{3}$	3'09	"	4'77	"
20		$\frac{1}{2}$	1'54	"	2'38	"
25		$\frac{1}{2}$	1'93	"	2'98	"
10		$\frac{1}{10}$	'77	"	1'19	"
5		$\frac{1}{20}$	'38	"	'59	"
2 $\frac{1}{2}$		$\frac{1}{40}$	'19	"	'29	"
1		$\frac{1}{100}$	'077	"	'119	"
$\frac{1}{2}$		$\frac{1}{200}$	'038	"	'059	"
$\frac{1}{4}$		$\frac{1}{400}$	'019	"	'0297	"
$\frac{1}{8}$		$\frac{1}{800}$	'0096	"	'0148	"
$\frac{1}{16}$		$\frac{1}{1600}$	'0048	"	'0074	"
$\frac{1}{32}$		$\frac{1}{3200}$	'0024	"	'0037	"
$\frac{1}{64}$		$\frac{1}{6400}$	'0012	"	'00185	"

There are imperials of ten roubles in gold and half roubles on the scale of the larger weight to the rouble. The silver rouble contains 405 dolis of pure silver or 179'961 decigrams or 277'7221 troy grains pure silver. The constant 551'05095, divided by the price of silver, yields the ratio.

Silver rouble.

		Gross.	Fineness.	Pure Silver.	Monetary sign for 'r.
Decigrams	...	199'957	$\frac{9}{10}$	179'961	'55567 copecks.
Troy grains	...	308'5806	"	277'7221	'36007 "

X. JAPANESE MONETARY SYSTEM.

Yen.

		Gross.	Fineness.	Pure Gold.	Monetary sign for 'r.
Decigrams	...	8'33333	$\frac{9}{10}$	7'5	13'33333 sens.
Troy grains	...	12'8602964	"	11'574266	8'63985 "

MONEY TABLE.

100 sens = 1 yen.

MONEY WEIGHT TABLE.

= 1 mo.
10 mos = 1 rin.
10 rins = 1 fun.
10 funs = 1 momme or 37'50 decigrams or 57'8713364 troy grains.

Gold is sold per 100 mommes or 3750 decigrams or 5787'133646382 troy grains. Since one momme equals 100 rins,

1 decigram equals 2'666666667 rins.
1 troy grain " 1'7279711531 "
1 rin " 375000000 decigram.
" " 5787'133646 troy grain.

The constant 500 yens, divided by the price in yens for 1000 momes of silver, will give the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

I yen			S.C.	7'5	decigrams	11'57	troy grains
75 sens	$\frac{3}{4}$	silver	T.C.	5'62	"	8'68	"
50 "	$\frac{2}{3}$	"	"	3'75	"	5'78	"
40 "	$\frac{1}{2}$	"	"	3'00	"	4'63	"
25 "	$\frac{1}{4}$	"	"	1'87	"	2'89	"
20 "	$\frac{1}{5}$	"	"	1'5	"	2'31	"
10 "	$\frac{1}{10}$	"	"	75	"	1'15	"
5 "	$\frac{1}{20}$	"	"	37	"	57	"
2 $\frac{1}{2}$ "	$\frac{1}{40}$	"	"	187	"	29	"
1 "	$\frac{1}{80}$	"	"	9375	"	11	"
$\frac{1}{2}$	$\frac{1}{160}$			9375	"	57	"
$\frac{1}{4}$	$\frac{1}{320}$			9375	"	29	"
$\frac{1}{8}$	$\frac{1}{640}$			9375	"	14	"
$\frac{1}{16}$	$\frac{1}{1280}$			9375	"	72	"
$\frac{1}{32}$	$\frac{1}{2560}$			9375	"	36	"
$\frac{1}{64}$	$\frac{1}{5120}$			9375	"	18	"

The coinage charge is one per cent. on both gold and silver.

There are gold coins of 20, 10, 2, and 1 yen each on the scale of fifteen decigrams in one yen.

The tolerance upon the new gold coinage is :

20 yen piece per 324 decigram per piece 31'125 per 1000 pieces.

10 " " 2269 " " 23'25 "

5 " " 162 " " 15'375 "

The least legal circulating weight :

20 yen piece per 165'75 decigrams.

10 " " 82'875 "

5 " " 41'438 "

The silver yen on issue from the mint contains 242'607149 decigrams of pure silver ; this compared with the new yen gives a ratio of 32'347 parts of silver to one of gold. The new ratio which will be established between gold and silver by the countries which are scaling down their gold weights will be as follows to their present silver weights, should they prove successful :—Parts of silver to one of gold—Russia 23'24, Austria-Hungary 36'44, Japan 32'347, Chili 40'90, British India 21'90.

Silver Yen.

		Gross.	Fineness.	Pure Silver.	Monetary sign for 'r.
Decigrams	...	269'564	1 ⁹ / ₁₀	242'607	'41219 sens.
Troy grains	...	416'	"	374'4	'26709 "

XI. DUTCH MONETARY SYSTEM.

Guilder or Florin.

		Gross.	Fineness.	Pure Gold.	Monetary sign for 'r.
Decigrams	...	6'72	1 ⁹ / ₁₀	6'048	16'534391 cents.
Troy grains	...	10'370542	"	9'33348	10'714112 "

MONEY TABLE.

100 cents = 1 guilder.

MONEY WEIGHT TABLE.

See FRANCE.

The constant 1653'4391, being divided by the price of 1 kilo. of silver in guilders, gives the ratio between the metals.

A kilogram of pure gold is coined into 165'3439 pieces of 10 guilders each. The Bank of Holland ordinarily buys pure gold at 1647 florins per kilo., and sells it at 1653 florins per kilo. It also sells coins at 1658 florins per kilo. Coinage charge is 5 florins per kilo. on double ducat, '37 per cent.; on ducat, '43 per cent.; on 10 guilders, '337 per cent. The tolerance in fineness is 1'5 per mille; on weight, 2 per mille. Gold and silver are sold per kilo. of pure metal.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

Gulden	10		S.C.	60'48	decigrams	93'3	troy grains
"	5 ³ / ₄	gold	T.C.	34'34	"	53'03	"
"	2 ¹ / ₂	silver	T.C.	15'12	"	23'33	"
"	1	"	"	6'04	"	9'33	"
"	¹ / ₂	"	"	3'02	"	4'66	"
Cents	25 ¹ / ₄	"	"	1'51	"	2'33	"
"	10 ¹ / ₁₀	"	"	'60	"	'93	"
"	5 ² / ₁₀	"	"	'30	"	'46	"
"	1 ¹ / ₁₀	bronze	"	'060	"	'093	"
"	² / ₁₀			'034	"	'046	"
"	¹ / ₁₀			'015	"	'023	"
"	¹ / ₂₀			'0075	"	'012	"
"	¹ / ₄₀			'0037	"	'0060	"
"	¹ / ₈₀			'0018	"	'0030	"
"	¹ / ₁₆₀			'00094	"	'0015	"

XII. CHILIAN MONETARY SYSTEM.

Condor.

		Gross.	Fineness.	Pure gold.	Monetary sign for 'r.
Decigrams	...	5'991035	1½	5'49178208	18 209025
Troy grains	...	9'24557872	"	8'4751138	11'793352

MONEY TABLE.

100 centavos = 1 condor.

MONEY WEIGHT TABLE.

See FRANCE.

Gold and silver are sold by the kilogram. The constant 1820'9026 condors, being divided by the price in condors, will give the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

			PURE GOLD.	
Condor	20	S.C.	109'8356416 decigrams	169'502276 troy grns.
"	10	"	54'9178208	84'751138 "
"	5	"	27'4589104	42'375569 "
"	1	T.C. silver	5'49	8'47 "
Centavos	50½		2'79	4'24 "
"	25¼		1'39	2'118 "
"	20½		1'098	1'69 "
"	10¼		5591	85 "
"	5½		27	42 "
"	2½ 40		14	21 "
"	1¼ 100		05	084 "
"	½ 200		027	042 "
"	¼ 400		014	021 "
"	⅛ 800		0068	0105 "
"	1⁄16 1600		0034	0053 "
"	1⁄32 3200		00017	0026 "
"	1⁄64 6400		00085	0013 "

XIII. BRITISH INDIA.

Rupee.

	Gross.	Fineness.	Pure gold.	Monetary sign for 'r.
Decigrams	5'32537	1½	4'88158784	3'277622 annas.
Troy grains	8'218312	"	7'53344	2'123863 "

MONEY TABLE.

12 pies = 1 anna
16 annas = 1 rupee

MONEY WEIGHT TABLE.

	Decigrams.	Troy grains.
1 punk	07593623	1171875
4 punks = 1 dhan	30374493	46875
4 dhans = 1 ruttee	121497972	1875
8 ruttees = 1 masha	971983773	15
12 mashas = 1 tola	1166380528	180

Gold and silver are sold per tola, or 116·63805 decigrams, or 180 troy grains. Since 96 ruttees equal 1 tola,

1 decigram = ·8230590075 ruttee.
 1 troy grain = ·5333333333 "
 1 ruttee = 1·2149797170 decigram.
 „ = 1·8750000000 troy grain.

The constant 382·29546 annas, being divided by the price of silver of the day in annas, gives the ratio between the metals.

PRESENT AND THE PROJECTED GOLD COINS AND MONEYS OF
ACCOUNT.

S.C., Standard. T.C., Token Coins.

PURE GOLD.

				Decigrams	Troy grains
Rupees	30 double mohurs	S.C.		3207·546	4950·
"	15 "	"		1603·773	2475·
"	10 $\frac{1}{2}$ "	"		320·754	495·
"	5 $\frac{1}{2}$ "	"		160·377	247·5
"	1 "	"		4·881	7·533
"	1 silver	T.C.		4·881	7·533
Annas	8 $\frac{1}{2}$ "	"		2·441	3·766
"	4 $\frac{1}{2}$ "	"		1·22	1·88
"	2 $\frac{1}{2}$ "	"		·61	·94
"	1 $\frac{1}{2}$ "	"		·30	·47
Pice	6 pies $\frac{1}{2}$ bronze	"		·15	·23
"	3 " $\frac{1}{4}$ "	"		·076	·117
"	8 " $\frac{1}{4}$ "	"		·20	·31
Pie	1 " $\frac{1}{8}$ "	"		·025	·039
"	$\frac{1}{2}$ " $\frac{1}{8}$ "	"		·0127	·019
"	$\frac{1}{4}$ " $\frac{1}{8}$ "	"		·00635	·0098
"	$\frac{1}{8}$ " $\frac{1}{8}$ "	"		·003175	·0049
"	$\frac{1}{16}$ " $\frac{1}{8}$ "	"		·00158	·0024
"	$\frac{1}{32}$ " $\frac{1}{4}$ "	"		·00079	·0012
"	$\frac{1}{64}$ " $\frac{1}{2}$ "	"		·00039	·00061

Silver Rupee.

	Gross.	Fineness.	Pure silver.	Monetary sign for 'r.
Decigrams	... 116·638	$\frac{1}{2}$	106·918215	1·79576 pies.
Troy grains	... 180·	"	165	1·163636 "

On June 26th, 1893, an Act was passed by the Council of the Governor-General of India, with the approval of the British Cabinet, which abolished India's effective silver standard cum-coinage charge system. By the same Act a mythical gold rupee was projected, and the mints of India were closed against the reception of silver from the public, whilst the purchase of silver and the coinage of rupees of

165 grains of pure silver in each may be effected at the discretion of the State. Subsequently an import duty of 5 per cent. was imposed on silver. Silver rupees continue to be unlimited legal tender. The aim is for India to become possessed of an effective gold monetary system with a gold rupee as the chief measure of value, fifteen of these gold rupees to contain the same weight of pure gold as is contained in one sovereign. If nothing intervenes, the success of this measure hangs upon the accumulation of gold by the Government of India. If a stock of gold is made dependent upon the ratio between the whole import and export trade of India, it is likely to occupy a long time before the standard will be anything but mythical, even under the most favourable circumstances. If the current of trade should change the position, the Governments of India and the British Isles would become worse off than they would have been under the continuous silver standard.

Till the breakdown in theory and practice of local dual standards in 1873, ten rupees were roughly taken as equal to a British sovereign, and one and a half penny as one anna. Under this system one anna and one penny indicate the same weight of pure gold. British India at present has no standard.

XIV. SCANDINAVIAN MONETARY SYSTEM.

<i>Crown.</i>					
	Gross.	Fineness.	Pure gold.	Monetary sign for "1.	
Decigrams	4'4803	1 ⁰ / ₁₀	4'03225806	24'8	ores.
Troy grains	6'9141	"	6'22274277	16'07014	"

MONEY TABLE.

100 ores = 1 crown.

MONEY WEIGHT TABLE.

See FRANCE and Danish mark.

The constant 1240, divided by the price of $\frac{1}{2}$ kilo. of silver in crowns, gives the ratio between the metals.

One kilo. of fine gold is coined into 248 10-crown pieces, or 124 20-crown pieces. The coinage charge is—for 20-crown pieces, $\frac{1}{4}$ per cent. ; for 10-crown pieces, $\frac{1}{2}$ per cent. Tolerance $1\frac{1}{2}$ to 2 per mille. The Danish National Bank ordinarily

buys gold at 2480 crowns per kilo., fine, less $\frac{1}{4}$ per cent. Gold and silver are bought and sold by the Danish mark of 8 unsers, or 16 lods, or 256 orts, equal to 235·294 grams, or 3631·139 troy grains.

The constant 1240·0, being divided by the Scandinavian price in crowns for $\frac{1}{2}$ kilo. of silver, gives the ratio of silver to gold.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

Crowns		20	S.C.	80·64	decigrams	124·45	troy grains
"		10	"	40·32	"	62·22	"
"	silver	2	T.C.	8·06	"	12·44	"
Ores	"	100	"	4·03	"	6·22	"
"	"	50 $\frac{1}{2}$	"	2·01	"	3·11	"
"	"	40 $\frac{1}{2}$	"	1·61	"	2·48	"
"	"	25 $\frac{1}{2}$	"	1·01	"	1·55	"
"	"	10 $\frac{1}{10}$	"	·40	"	·622	"
"	bronze	5 $\frac{1}{20}$	"	·20	"	·311	"
"	"	2 $\frac{1}{20}$	"	·081	"	·124	"
"	"	1 $\frac{1}{100}$	"	·0403	"	·0622	"
		$\frac{1}{2}$ 20 0		·020	"	·047	"
		$\frac{1}{4}$ 40 0		·010	"	·023	"
		$\frac{1}{8}$ 80 0		·0050	"	·0118	"
		1 160 0		·0025	"	·0059	"
		3 320 0		·0012	"	·0029	"
		8 640 0		·00062	"	·0015	"

This is the monetary system of the Faroe Isles, Greenland, Iceland, St. Croix, St. John, and St. Thomas.

XV. GERMAN MONETARY SYSTEM.

Mark.

	Gross.	Fineness.	Pure gold.	Monetary sign for "i."
Decigrams ...	3·9825	$\frac{9}{10}$	3·584225806	27·900043 pfennigs.
Troy grains ...	6·1458	"	5·53134	18·078906 "

MONEY TABLE.

100 pfennigs = 1 mark.

MONEY WEIGHT TABLE.

Same as France.

The constant 1395·00213 being divided by the price in marks for $\frac{1}{2}$ kilo. of silver, gives the ratio between the metals.

A zollverein pound, or 500 grams, or 7716·17437 troy

grains of standard gold is coined into 125·55 10-mark pieces. 500 grams of pure gold is coined into 139½ 10-mark pieces. Coinage charge on gold, 3 marks per pound of pure gold. Tolerance, 2½ per mille on 20 and 10-mark pieces, 4 per mille on 5-mark pieces. Gold and silver sold by the ½ kilo. of pure metal. Gold coins having lost 5 per mille of their weight cease to be legal tender. The Treasury, however, receives them at full value. The old silver thaler pieces are still unlimited legal tender. Other silver coins are only legal tender for 20 marks in one payment. The Imperial Bank of Germany ordinarily buys a pound of pure gold at 1392 marks, provided the minimum weight of a bar is 5 pounds, and the fineness not less than 900 in 1000 parts.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

20 reichmarks	gold S.C.	71·68	decigrams	110·62	troy grains
10 "	" "	35·84	"	55·31	"
5 "	silver T.C.	17·92	"	27·65	"
2 "	" "	7·16	"	11·06	"
1 mark	" "	3·58	"	5·53	"
50 pfennigs	½ "	1·79	"	2·76	"
20 "	⅙ nickel	·71	"	1·11	"
10 "	⅓ "	·35	"	·55	"
5 "	⅔ "	·17	"	·27	"
2 "	⅞ bronze	·071	"	·11	"
1 "	1·00 "	·035	"	·055	"
½ "	2·00 "	·0179	"	·027	"
¼ "	4·00 "	·0089	"	·013	"
⅛ "	8·00 "	·0044	"	·0069	"
1⁄16 "	16·00 "	·0022	"	·0034	"
3⁄32 "	32·00 "	·0011	"	·0017	"
1⁄64 "	64·00 "	·00056	"	·00086	"

This is the monetary system of the Dama and Nama Coast, the Hinterland of Africa, New Guinea, and Togoland.

XVI. AUSTRIA-HUNGARIAN MONETARY SYSTEM.

Crown.

	Gross.	Fineness.	Pure gold.	Monetary sign for '1.	
Decigrams ...	3·3875338	⅙	3·048780487	32·8	hellers.
Troy grains	5·2277616	"	4·7049864	21·254048	"

MONEY TABLE.

100 kreutzers = 1 florin, old.
100 hellers = 1 crown, new.

MONEY WEIGHT TABLE.

Same as France.

There is an impression that the pure gold in the crown is one half of that contained in the florin. Accepting Mr. Muhleman, of the United States Treasury, as a careful and reliable guide, the pure gold in the $\frac{1}{2}$ florin appears to be 19.03 per cent more than in the crown. The florin is given as 8.065 decigrams, $\frac{9}{10}$ fine; pure gold 7.2585 decigrams, $\frac{1}{2}$ 3.6292 decigrams. Gold and silver are sold per 500 grams. The constant 1640, divided by the price of silver in crowns, gives the ratio between gold and silver.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

8 gulden		58.06	decigrams	89.60	troy grains
4 "		29.03	"	44.80	"
1 crown	S.C.	3.04	"	4.70	"
50 hellers	T.C.	1.52	"	2.35	"
25 "	"	.76	"	1.17	"
20 "	"	.61	"	.94	"
10 "	"	.30	"	.47	"
5 "	"	.15	"	.23	"
2½ "	"	.076	"	.12	"
1 "	"	.030	"	.047	"
½ "	"	.015	"	.023	"
¼ "	"	.0076	"	.0117	"
⅛ "	"	.0038	"	.0058	"
1⁄16 "	"	.0019	"	.0029	"
1⁄32 "	"	.00095	"	.0014	"
1⁄64 "	"	.00047	"	.00073	"

The silver crown in the new coinage of 5 grams 835 fineness institutes a ratio of 13.69 to 1 between the metals. Noback gives the weight of the Maria Theresa or Levantine thaler as 280.668 decigrams 833.333 fineness, 233.89 decigrams of pure silver.

Silver Florin or Gulden.

		Gross.	Fineness.	Pure silver.	Monetary sign for 'r.
Decigrams	...	123.457	$\frac{9}{10}$	111.1111	9.00 kreutzers.
Troy grains	...	190.5231	"	171.4708	.5832 "

XVII. FRENCH MONETARY SYSTEM.

Franc.

		Gross.	Fineness.	Pure gold.	Monetary sign for 'r.
Decigrams	...	3.22581	$\frac{9}{10}$	2.903225806	34.444444 centimes.
Troy grains	...	4.978128	"	4.480359	22.31964 "

MONEY TABLE.

100 centimes = 1 franc.

MONEY WEIGHT TABLE.

	1 centigram	15432 troy grains
10 centigrams =	1 decigram	154323
10 decigrams =	1 gram	1543235
10 grams =	1 dekagram	15432356
10 dekagrams =	1 hectogram	154323563
10 hectogram =	1 kilogram	1543235639

The constant 3444'4444, being divided by the price of one kilogram of silver, gives the ratio between the two metals. One kilo. of gold $\frac{8}{10}$ fine is coined into 3100 francs. One kilo. of pure gold is coined into 3444'4444 francs. The remedy is $\frac{1}{1000}$ for weight and $\frac{1}{800}$ for fineness on 20 and 10 franc pieces, and on 5 franc pieces $\frac{3}{1000}$ for weight and $\frac{1}{800}$ for fineness. The mint buys gold bars of 900 fineness at 3093'30 francs per kilo., making the mintage charge 6'7 francs per kilo.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard. T.C., Token Coins.

SIGNS AND PURE GOLD.

100 francs	S.C.		290'3	decigrams	448'03	troy grains
50	"	"	145'51	"	224'01	"
40	"	"	116'13	"	179'21	"
20	"	"	58'06	"	89'60	"
10	"	"	29'03	"	44'80	"
5	"	"	14'51	"	22'40	"
5	"	T.C. silver	14'51	"	22'40	"
2	"	"	5'80	"	8'96	"
1	"	"	2'90	"	4'48	"
50 centimes	"	$\frac{1}{2}$	1'45	"	2'24	"
20	"	$\frac{1}{5}$	'58	"	'89	"
10	"	bronze $\frac{1}{10}$	'29	"	'49	"
5	"	" $\frac{1}{20}$	'14	"	'24	"
2	"	" $\frac{1}{30}$	'058	"	'089	"
1	"	" $\frac{1}{60}$	'029	"	'044	"
$\frac{1}{2}$	"	" $\frac{1}{120}$	'014	"	'022	"
$\frac{1}{4}$	"	" $\frac{1}{240}$	'0072	"	'011	"
$\frac{1}{8}$	"	" $\frac{1}{480}$	'0036	"	'0056	"
$\frac{1}{16}$	"	" $\frac{1}{960}$	'0018	"	'0028	"
$\frac{1}{32}$	"	" $\frac{1}{1920}$	'00090	"	'0014	"
$\frac{1}{64}$	"	" $\frac{1}{3840}$	'00045	"	'00070	"

The states forming the Latin Union are France, Italy, Belgium, Switzerland, and Greece. The weight of pure gold

in the franc under that or some other name, or five times the weight of the pure gold in the franc, form the monetary systems of Spain,* Roumania, Bulgaria, Servia, and Finland in Europe; the Argentine Republic,* Venezuela, U.S. of Columbia,* Ecuador,* Peru,* Bolivia,* and Paraguay* in South America; Costa Rica,* Nicaragua,* Honduras,* Salvador,* and Guatemala* in Central America. To quote from Mr. M. L. Muhleman's valuable book, "Monetary Systems of the World," New York, 1896, in which the greatest pains have been taken to give the all-important matter of weights of pure gold or silver forming the chief moneys of account of the world:—"France also provides coins for its colonial possessions, Algiers, Tunis, Madagascar, and Cochin China; for the latter in pieces denominated piastres or dollars and cents (see under Asia post). The other possessions of France—Martinique and Guadaloupe in the W. Indies, St. Pierre and Miquelan near Newfoundland, Pondichery in India, Guiana in S. America, and the Island of Réunion in the Indian Ocean—require very little coin. A special coinage of 1'00-franc pieces is occasionally struck for Monaco."

SECTION II.

THE WORLD'S EIGHT SILVER MONETARY SYSTEMS

**AND A CONSTANT ATTACHED TO EACH TO
DETERMINE THE RATIO BETWEEN GOLD AND SILVER
ON THE MARKET PRICE OF GOLD OF THE DAY.**



TABLE XIII.

SILVER MONETARY SYSTEMS, ETC.

Weights by which pure silver and pure gold are sold in the world's silver monetary systems. Also monetary signs for 1 kilogram, 1 lb. avoirdupois, and 1 troy ounce of pure silver.

Name of System.	Name of Weight.	Grams.	Monetary sign for Name of Weight.	Monetary sign for 1 kilogram.	Monetary sign for 7000 troy grains, or 453.5924768 decigrams.	Monetary sign for 480 troy grains, or 31.108567 decigrams.
I. Shanghai	Tael	= 37.799368	T. 1'12959441	T. 29'884163	T. 13'555232	T. '929504
II. Mexican	Kilogram	= 1000	P. 40'915	P. 40'915	P. 18'558739	P. 1'272602
III. Japanese	1 kaume, or } 1000 monme }	= 375	Y. 154'56872	Y. 41'2189	Y. 18'696 81	Y. 1'282035
IV. Javanese	Troy mark	= 246.107291	R.D. 10'417266	R.D. 42'328041	R.D. 19'2	R.D. 1'31655
V. Philippine	Tael	= 269.298018	\$11'526152	\$42'800890	\$19'414159	\$1'331261
VI. Columbian, U.S.	Kilogram	= 1000	\$44'444444	\$44'444444	\$20'159667	\$1'382381
VII. Bolivian	"	= "	B. 49'382	B. 49'382	B. 22'399643	B. 1'535979
VIII. Russian	Zolotnick	= 4.265798	K. 23'704	R. 55'562038	R. 25'20504	R. 1'728351
IX. Siamese	Tical	= 15.292544	T. 1'042833	T. 68'199146	T. 31	T. 2'121433
X. Austrian	† kilogram	= 500	FL. 45	FL. 90	FL. 40'823318	FL. 2'791222
XI. British Indian	Tola	= 11.663805	R. 1'090909	R. 93'529433	R. 42'424242	R. 2'909100
XII. Persian	Miscal	= 4.538516	K. 1'095470	K. 241'372015	K. 109'484485	K. 7'417533

THE WORLD'S EIGHT PRESENT SILVER MONETARY SYSTEMS.

I. CHINESE MONETARY SYSTEM.

Shanghae tael.

	Pure silver.	Monetary sign of 1 decigram and 1 grain.
Decigrams ...	334'6254	2'988416 cash
Troy grains ...	516'4058422	1'93646 „

MONEY TABLE.

1000 cash	= 1 tael weight.
10 cash or le	= 1 candareen or fun.
10 candareens	= 1 mace or tsein.
10 mace	= 1 tael or liang.

MONEY WEIGHT TABLE.

10 hu	= 1 ssu	10 li	= 1 fen.
10 ssu	= 1 hao	10 fen	= 1 ch'ien.
10 hao	= 1 li	10 ch'ien	= 1 liang.

Gold and silver are sold by the tael or liang, or 377'9936897375 decigrams, or 583'3333333333 troy grains. Since 1000 li equal one tael or liang,

1 decigram	= 2'6455468098 li
1 troy grain	= 1'7142857143 li
1 li	= 3779936897 decigram
1 li	= 5833333333 troy grain

The constant 1'1296023 tael used as a divisor of the price of gold in taels will give the ratio.

By reference to page 39 the result of the painstaking work of the mint department of the U.S.A. N.A. in giving the various U.S.A. values of 14 descriptions of Chinese tael weights of silver will be seen. After consultation with all the best authorities, the writer has taken the weights given above as those which govern the exchanges between this country and Shanghae. Taking the grains of pure silver in the Shanghae tael as 516'4058422, it will be seen that it differs from that given in his last edition, viz. 513'0572. This is an excess of $6\frac{1}{2}$ per mille.

Various European weights for weighment of silver in Shanghae are given in the current cambists. However, in

Browne's fourth edition of the "Merchant's Hand Book" 5833 is given. In 1873 the Calcutta mint authorities gave the weight of pure silver in the Shanghai tael as 508.5 troy grains. The general manager of the late New Oriental Bank Corporation, Limited, who took an intelligent and uncommon interest in the subject, made the weight 518.56 troy grains. The above weight of 513.0572 troy grains of pure silver is thus reached: 717 Canton taels weigh 1000 new and true Mexican dollars, of 377,058 troy grains of pure silver each; $102\frac{1}{2}$ Shanghai taels equal 100 Canton taels; the 1000 Mexican dollars therefore weigh 734.92 Shanghai taels. The pure silver in 1000 Mexican dollars divided by this gives 513.0572 troy grains of pure silver. Tate's Cambist gives a Shanghai tael as equal to 1.3937 Mexican dollars, or 525.5065 troy grains of pure silver; also 75 taels or 100 Mexican dollars, or 502.7448 troy grains of pure silver. Haupt, in his Cambist, under the heads "China," "Shanghai," "Hongkong," "Vienna," gives information which makes the weight of pure silver in a Shanghai tael 508.1175, 515.9825, 518.0659, and 523.5458. Among the facsimiles of coins published in 1875 by Verlag von L. Vangerow, there is a circular Chinese tael with characters on both sides valued at fr. 8.12 c., or 563.88 troy grains of pure silver. Under the head of "Anam" are two oblong pieces of silver called taels with characters upon both sides, and valued at fr. 8.50 c. each, or 590.28 troy grains of pure silver; another valued at fr. 6.75 c., or 468.75 troy grains of pure silver; and a fourth at fr. 3.37 c., or 234.03 troy grains of pure silver. These French prices are taken at the proportion of $15\frac{1}{2}$ parts of silver to 1 part of gold. A Shanghai tael struck at the Hongkong mint in 1867, having on it the words "One Tael Shanghai and Hongkong," and the figures "982—G 566," was but a specimen coin, which, however, the late Major Kinder, Director of that mint, suggested as convenient for circulation in Hongkong and China. The first number on the coin is the fineness, and the second the weight in troy grains. The weight of pure silver in this coin was therefore 554.4018 troy grains. China has recently erected the largest mint in the world. The tael

coin, to command circulation, for the basis of the Shanghai tael, should not contain more than 513 troy grains of pure silver. Any new dollar to compete with the Mexican peso should not contain less than 377·18098 troy grains.

It is affirmed that the Chinese are preparing to coin a dollar which is to be $\frac{72}{100}$ of the Kuping tael. This tael is 371·806 decigrams, $\frac{7}{100}$ of this is 267·70032 decigrams, or 413·1246743 troy grains at $\frac{9}{10}$ fineness; this gives 371·812207 troy grains as the weight of pure silver in the new dollar.

II. MEXICAN MONETARY SYSTEM.

Peso or dollar.

		Gross.	Fineness.	Pure silver.	Monetary sign for 'i.
Decigrams	...	270·73	902·778	244·4091849	·40915 centavos.
Troy grains	...	417·7847	"	377·180980	·26512 "

MONEY TABLE.

100 centavos = 1 peso or dollar.

MONEY WEIGHT TABLE.

See FRANCE.

Gold and silver are sold per kilogram. The price of gold in pesos being divided by 40·914994 gives the ratio between the metals. A troy ounce of Mexican dollars contains 433·33 grains of pure silver. The pure silver in the British standard ounce being 440 troy grains, it is $1\frac{1}{2}$ per cent. heavier than the ounce of Mexican dollars.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard; T.C. Token Coins.

PURE SILVER.

Peso or dollar	i	S.C.	244·409	decigrams	377·181	troy grains
50 centavos	" $\frac{1}{2}$	"	122·20	"	188·59	"
25	" $\frac{1}{4}$	"	61·10	"	94·29	"
20	" piastre $\frac{1}{5}$	"	48·88	"	77·43	"
12½	" real	"	30·55	"	47·15	"
10	" $\frac{1}{10}$	"	24·44	"	37·718	"
5	" $\frac{1}{20}$	"	12·22	"	18·86	"
2½	" $\frac{1}{40}$	"	6·11	"	9·43	"
1	" bronze $\frac{1}{100}$	"	2·44	"	3·77	"
$\frac{1}{2}$	" $\frac{1}{200}$	"	1·22	"	1·88	"
$\frac{1}{4}$	" $\frac{1}{400}$	"	·61	"	·94	"
$\frac{1}{8}$	" $\frac{1}{800}$	"	·30	"	·47	"
$\frac{1}{16}$	" $\frac{1}{1600}$	"	·15	"	·23	"
$\frac{3}{32}$	" $\frac{3}{3200}$	"	·076	"	·117	"
$\frac{1}{64}$	" $\frac{1}{6400}$	"	·038	"	·0589	"

The present coinage charge on the Mexican dollar is 2 per cent. It is one of the chief dollars of the East, and formerly, if not at present, governed the exchanges of Borneo, Labuan, Hongkong, Singapore, and many other places in the Pacific Ocean. The gold coins are 1 peso or dollar, 16.88 decigrams, 875 fineness; this is the sixteenth of a doubloon; there are doubloons, $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ of a 16-doubloon piece: 16, 8, 4, and 2 dollars respectively.

III. JAVANESE MONETARY SYSTEM.

Rix dollar or 2½ florin or guilder.

		Gross.	Fineness.	Pure silver.	Monetary sign for 'r.
Decigrams	...	250	945	236.25	42328 cents.
Troy grains	...	385.80875	"	364.58925	2743 "

MONEY TABLE.

100 cents or doits = 1 florin.

MONEY WEIGHT TABLE.

See FRANCE.

Gold is sold per kilogram. The constant 42.328442 rix dollars used as the divisor of the gold price of silver in rix dollars will give the ratio.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard; T.C., Token Coins.

	guilder	S.C.	236.25	decigrams	364.59	troy grains
2½	florin	"	94.5	"	145.83	"
1	doits ½	"	47.25	"	72.92	"
50	" ¼	"	23.625	"	36.45	"
25	" ⅛	"	9.45	"	14.58	"
10	" ⅙	"	4.725	"	7.29	"
5	" ⅓	"	2.362	"	3.64	"
2½	" ⅔	"	.945	"	1.46	"
1	" 1	"	.472	"	.73	"
½	" 2	"	.236	"	.365	"
¼	" 4	"	.118	"	.182	"
⅛	" 8	"	.059	"	.091	"
⅙	" 12	"	.029	"	.045	"

It was after this description of currency that the Indian Currency Committee of 1892-3 appeared to yearn. No one informed the examiners—some of the examinees surely must have known—that in modern commerce the most liquid wealth of a people is their standard substance and measure of value, provided, as happened at the period referred to, the substance used as money and for other objects is in extensive

internal and international demand by many countries. The inhabitants of the Dutch East Indies were parting with their value-giving factors in this, that, and other things for a silver currency supplied by Holland at 15·6 parts of silver to 1 part of gold, when the world-wide ratio was 26 to 1, and now the ratio is 34 to 1, and they are still paying for it at the rate of 15·6 to 1 in such things as they can part with for any requisite increase in their currency. The result of such practice is that the currency has a fictitious value of from $66\frac{1}{2}$ to 118 per cent. higher than countries possessing unfettered and unfavoured silver currencies. Java, &c., compared with such countries, is thus heavily handicapped in competition with their intercolonial and international imports and exports. The present silver-cum-counter currency systems are abortions akin to inconvertible paper based on gold and inconvertible paper based on silver, and dissolve into will-with-a-wisp before the light of the science of money.

IV. PHILIPPINE ISLES MONETARY SYSTEM.

Dollar.

		Gross.	Fineness.	Pure silver.	Monetary sign for "1."
Decigrams	...	259·6	$1\frac{9}{10}$	233·64	·428001 cents.
Troy grains	...	400·6253	"	360·5628	·2773 "

MONEY TABLE.

100 centavos	= 1 dollar.
also 100 "	= 4 real.
8 reals	= 1 dollar.

WEIGHT TABLE.

See FRANCE.

The price in Spanish dollars for 1 kilo of gold, being divided by the constant 42·800906, gives the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard; and T.C., Token Coins.

Dollar	S.C.	233·64	decigrams	360·56	troy grains
" $\frac{1}{2}$		116·82	"	180·28	"
" $\frac{1}{4}$		58·41	"	90·14	"
Cents 1	$1\frac{1}{10}$	2·34	"	3·60	"
	$\frac{1}{2}$ $2\frac{1}{10}$	1·67	"	·180	"
	$\frac{1}{4}$ $4\frac{1}{10}$	·58	"	·90	"
	$\frac{1}{8}$ $8\frac{1}{10}$	·29	"	·45	"
	$1\frac{1}{10}$ $18\frac{1}{10}$	·14	"	·23	"
	$3\frac{1}{2}$ $32\frac{1}{10}$	·072	"	·11	"
	$6\frac{1}{2}$ $64\frac{1}{10}$	·036	"	·057	"

Spain is supplying counters for the internal interchanges of these islands. There is no gold circulation or reserves in any of them. Manila has a mint, and used to coin gold. The exchanges with the Western world are worked on the Mexican dollar through Hongkong. Among the islands belonging to Spain are Penang, Manila, Marran Isle, and Timan.

V. COLUMBIAN, U.S., MONETARY SYSTEM

Sol or dollar.

	Gross.	Fineness.	Pure Silver.	Monetary sign for '1.
Decigrams ...	250'	$\frac{9}{10}$	225	'4444 cents.
Troy grains ...	385'86469	"	347'2278	'2880 "

MONEY TABLE.

120 centesimos = 1 sol or dollar.

MONEY WEIGHT TABLE.

See FRANCE.

The price of 1 kilo. of gold, being divided by the constant 44'444444, gives the ratio between the metals.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard ; T.C., Token Coins.

Sol or dollar		I	S.C.	225	decigrams	347'227	troy grains
Centesimos	50	$\frac{1}{2}$	"	112'5	"	178'61	"
"	20	$\frac{1}{5}$	T.C.	45	"	69'44	"
"	10	$\frac{1}{10}$	"	22'5	"	34'72	"
"	5	$\frac{1}{20}$	"	11'25	"	17'36	"
"	2 $\frac{1}{2}$	$\frac{1}{40}$	"	5'62	"	3'47	"
"	1	$\frac{1}{100}$	bronze	2'25	"	1'73	"
"	$\frac{1}{2}$	$\frac{1}{200}$	"	1'12	"	'868	"
"	$\frac{1}{4}$	$\frac{1}{400}$	"	'56	"	'434	"
"	$\frac{1}{8}$	$\frac{1}{800}$	"	'28	"	217	"
"	$\frac{1}{16}$	$\frac{1}{1600}$	"	'14	"	108	"
"	$\frac{1}{32}$	$\frac{1}{3200}$	"	'070	"	'054	"
"	$\frac{1}{64}$	$\frac{1}{6400}$	"	'035	"	'027	"

The pure gold in 5 sols is 112'01571 troy grains, or 7'2585 grams. There are gold coins of 20, 10, 2, and 1 sol, at the same proportion of pure gold as in the 5-sol piece. The silver peso and sol of South and Central America contain on issue from the mints five times the weight of pure silver in the franc. The silver franc is 45 decigrams, the peso and sol 225 decigrams. This latter weight is the coin used in

Argentina, Paraguay, Chili, Uruguay, Venezuela, Peru, U.S. Columbia, Ecuador, Guatemala, Honduras, Nicaragua, Costa Rica, and Salvador. The currency regulations in all these countries excepting Chili and Uruguay appoint a gold coin of five times the weight of the franc as a part of the circulation. The mint-issue weight of pure gold in the franc is 2.9032258 decigrams. The weight of pure gold in the peso and sol is 14.5161290 decigrams on issue from the mints. Some of these republics are discarding silver. Peru has closed its mints against it. Costa Rica has done the same, or is meditating it. Salvador has projected a gold weight, 16.129 decigrams, $\frac{9}{10}$ fine, for its chief money. This is the same weight as the Argentine chief money of account.

VI. BOLIVIAN MONETARY SYSTEM.

Boliviano.

	Gross.	Fineness.	Pure silver.	Monetary sign for '1.
Decigrams ...	225'	$1\frac{8}{10}$	202.5	'4938 centesimos.
Troy grains ...	347.22783	"	312.505046	'3200 "

MONEY TABLE.

100 centesimos = 1 boliviano.

MONEY WEIGHT TABLE.

See FRANCE.

The price of 1 kilo. of gold in bolivianos, divided by the constant 49.382716, gives the ratio between gold and silver.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard ; T.C., Token Coins.

Boliviano	I	S.C.	202.5 decigrams	312.50504 troy grains
50 centavos	$\frac{1}{2}$	"	101.25	"
20 "	$\frac{1}{5}$	"	40.5	"
10 "	$\frac{1}{10}$	"	20.25	"
5 "	$\frac{1}{20}$	"	10.12	"
10 " nickel	$\frac{1}{10}$	T.C.	20.25	"
5 "	$\frac{1}{20}$	"	10.12	"
1 " bronze	$\frac{1}{100}$	"	2.02	"
$\frac{1}{2}$ "	$\frac{1}{200}$	"	1.01	"
$\frac{1}{4}$ "	$\frac{1}{400}$	"	.505	"
$\frac{1}{8}$ "	$\frac{1}{800}$	"	.252	"
$\frac{1}{16}$ "	$\frac{1}{1600}$	"	.126	"
$\frac{1}{32}$ "	$\frac{1}{3200}$	"	.063	"
$\frac{1}{64}$ "	$\frac{1}{6400}$	"	.031	"

VII. SIAMESE MONETARY SYSTEM.

Tical.

	Pure silver.	Monetary sign for '1.
Decigrams ...	146'645531	'218213 phai-nungs.
Troy grains ...	226'300908	'1409 "

MONEY TABLE.

4 solots or pies =	1 phai-nung
4 phai-nungs =	1 fuang
2 fuangs =	1 solung
4 solungs =	1 tical or bat.

MONEY WEIGHT TABLE.

4 bats or ticals =	1 tael.
--------------------	---------

Gold and silver are sold per tical, or 152'9254470464 decigrams, or 236 troy grains. The constant 1'0428306 tical used as a divisor of the price of gold in ticals gives the ratio. Since 128 solots equal 1 tical,

1 decigram =	'8370091602 solot
1 troy grain =	'5423728814 "
1 solot =	1'1947300551 decigram
1 "	= 1'8437500000 troy grain.

Various weights of pure silver are given for the tical coin. Dr. Browne, in his 4th Edition of the "Merchants' Handbook," makes it 136'506 decigrams. "Tate's Cambist" gives the fine weight generally taken to be 138'585 decigrams. In Siam and in the Straits the money tical is $\frac{6}{10}$ of the Mexican dollar, which gives the weight above stated. Assays made at the Calcutta mint some years ago gave figures which represented the tical as $\frac{5471}{10000}$ of a Mexican dollar.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard; T.C., Token Coins.

Tical	1	S.C.	146'6455 decigrams	226'3009 troy grains
Phai-nungs 16	$\frac{1}{2}$	"	73'3227	113'1504 "
" 8	$\frac{1}{4}$	"	36'6613	56'5752 "
" 4	$\frac{1}{8}$	"	18'3316	28'2876 "
" 2	$\frac{1}{16}$	"	9'1658	14'1438 "
" 1	$\frac{1}{32}$	"	4'58	7'07 "
" $\frac{1}{2}$	$\frac{1}{64}$	"	2'29	3'53 "
Solot or pie 1	$\frac{1}{128}$	"	1'14	1'77 "
" $\frac{1}{2}$	$\frac{1}{256}$	"	'57	'88 "
" $\frac{1}{4}$	$\frac{1}{512}$	"	'28	'44 "
" $\frac{1}{8}$	$\frac{1}{1024}$	"	'14	'22 "
" $\frac{1}{16}$	$\frac{1}{2048}$	"	'072	'11 "
" $\frac{1}{32}$	$\frac{1}{4096}$	"	'036	'055 "
" $\frac{1}{64}$	$\frac{1}{8192}$	"	'018	'027 "

VIII. PERSIAN MONETARY SYSTEM.

		<i>Kran.</i>			Monetary sign for ".
		Gross.	Fineness.	Pure silver.	
Decigrams	...	46'0034	$\frac{9}{10}$	41'429836	48274 shahis
Troy grains	...	71'04	"	63'936	3128 "

MONEY TABLE.

50 dinars = 1 shahis or pessebat
 20 shahis = 1 kran
 10 krans = 1 toman.

MONEY WEIGHT TABLE.

4 gandums = 1 nakhod
 4 nakhods = 1 dong
 6 donges = 1 miscal
 2 miscals = 1 dirhem.

Gold and silver are sold per miscal, or 45'38516233 decigrams, or 70'04 troy grains. The constant 1'1111111 kran, used as a divisor of the price of gold in krans, will give the ratio. Since 96 gandums equal 1 miscal,

1 decigram	=	2'1152287457	gandums
1 troy grain	=	1'3706453455	"
1 gandum	=	4727621077	1 decigram
"	=	7295833333	1 troy grain.

It is through the courtesy of the manager of the London Bank of Persia that the above and following information is furnished. A kran is a miscal in weight of silver with alloy; 37 troy ounces are coined into 250 miscals, therefore the weight of each kran is 71'04 troy grains, $\frac{9}{10}$ fine, gives 63'936 troy grains of pure silver in the kran. The present gold toman weighs 43'11 troy grains, 885 fine, 38'15235 fine gold. As there are 10 krans to a toman, these weights of pure gold and silver establish a ratio of 16'76 parts of silver to 1 part of gold.

COINS AND MONEYS OF ACCOUNT.

S.C., Standard; T.C., Token Coins.

Kran		S.C.	41'43 decigrams	63'94 troy grains
10 shahis	$\frac{1}{2}$	"	20'71	31'97 "
5 "	$\frac{1}{4}$	"	10'36	15'98 "
1 "	$\frac{1}{20}$	T.C.	2'07	3'19 "
$\frac{2}{3}$ " part bronze	"	"	1'38	2'13 "
$\frac{1}{5}$ "	$\frac{1}{40}$	"	1'03	1'598 "
25 dinars	$\frac{1}{40}$	"	1'03	1'598 "
20 "	$\frac{1}{50}$	"	8382	1'278 "
10 "	$\frac{1}{100}$	"	41	639 "
5 "	$\frac{1}{200}$	"	21	319 "
2 $\frac{1}{2}$ "	$\frac{1}{400}$	"	103	159 "
1 "	$\frac{1}{800}$	"	51	79 "

SECTION III.

- I. RULES AND EXAMPLES FOR FINDING THE EQUIVALENT PREMIUM TO A GIVEN DISCOUNT, AND VICE VERSÂ.
- II. FOR ADJUSTING EXCHANGE TO AN INVOICE OF GOODS WHEN EXCHANGE IS WORKED BY PREMIUM AND DISCOUNT ON THE WHOLE SUM EXCHANGED.
- III. MULTIPLES FOR THE CONVERSION OF GRAMS INTO TROY GRAINS.
- IV. CONVERSION OF FRACTIONS INTO DECIMALS.

SECTION III.

RULES AND EXAMPLES FOR FINDING THE
EQUIVALENT PREMIUM TO A GIVEN DIS-
COUNT, AND VICE VERSÂ.

ALL charges for coinage and those connected with the transmission of standard metal, &c., and which cause the deviation from par in rates of exchange, assume a form of percentage which can be deducted from or added to the fixed and absolute pars of exchange for any sum of money, or may be taken upon the total sum exchanged.

In the present mode of quoting and working the exchanges, the charges are expressed in the quoted rates.

EQUIVALENT PREMIUMS TO A GIVEN DISCOUNT.

I. Whenever a paper currency exists at a discount compared with the metal standard for which it should exchange at par, and it is desired to know the equivalent premium on the metal standard, an example of the method to find it is attached.

EXAMPLE I.—Say the paper currency is at a discount of 74'747 as compared with gold in the Argentine Republic, what is the percentage premium on the gold expressed in paper?

$$\begin{array}{r}
 100 \\
 74'747 \\
 \hline
 25'253) 7.474'700 \text{ (296 per cent. premium.)} \\
 \underline{50506} \\
 242410 \\
 \underline{227277} \\
 151330 \\
 \underline{151518}
 \end{array}$$

EQUIVALENT DISCOUNT FOR A GIVEN PREMIUM.

EXAMPLE II.—Premium on gold in the Argentine Republic 296 per cent., at what percentage discount is the paper ?

$$\frac{296 \times 100}{396} = 74.747 \text{ per cent. discount.}$$

RULE FOR ADJUSTING EXCHANGE TO AN INVOICE OF
GOODS WHEN EXCHANGE IS WORKED BY PREMIUM
AND DISCOUNT ON ONE FACTOR.

Exchange is quoted in London on Melbourne at 3 per cent. discount (I.) for a 60 days' sight bill, or at 1 per cent. premium (II.) for a demand bill ; what amount must be added to or deducted from the invoice to produce the amount of the invoice by the sale of the bill of exchange for the same ?

RULE.—Multiply the invoice by 100, and divide the result by

- (I.) 100 — the discount, if the exchange be at a discount.
(II.) 100 + the premium, if the exchange be at a premium.

The rate of discount on the first sum, or the rate of premium on the second sum, will bring the respective invoice amounts to the sums to be received from the purchaser of the bills, less the discount, or plus the premium.

TABLE OF MULTIPLES FOR THE CONVERSION OF DECIGRAMS INTO
TROY GRAINS.

1 decigram = I.	1.54323563905 troy grain
II.	3.08647127810 "
III.	4.62970691715 "
IV.	6.17294255620 "
V.	7.71617819525 "
VI.	9.25941383430 "
VII.	10.80264947335 "
VIII.	12.34588511240 "
IX.	13.88912075145 "

TABLE OF MULTIPLES FOR THE CONVERSION OF A TROY GRAIN INTO A DECIGRAM.

I troy grain = I.	.6479891824009 decigram
II.	1'2959783648018 "
III.	1'9439675472027 "
IV.	2'5919567296036 "
V.	3'2399459120045 "
VI.	3'8879350944054 "
VII.	4'5359242768063 "
VIII.	5'1839134592072 "
IX.	5'8319026416081 "

7000 troy grains equal 1 lb. avoirdupois.

TABLE XIV.

TABLE OF CONVERSION OF FRACTIONS INTO DECIMALS.

$\frac{1}{4}$ ... ..	.015625	$\frac{3}{4}$ ... ..	.75
$\frac{1}{2}$ ... ..	.03125	$\frac{1}{2}$ ... ..	.5
$\frac{3}{4}$ ... ..	.046875	$\frac{3}{4}$ ... ..	.75
... ..	.0625	... ..	.875
$\frac{5}{8}$ ... ..	.078125	$\frac{1}{8}$ ... ..	.125
$\frac{3}{2}$ ... ..	.09375	$\frac{3}{2}$ ... ..	.375
$\frac{7}{4}$ ... ..	.109375	$\frac{3}{4}$ ... ..	.5625
... ..	.125	... ..	.6875
$\frac{9}{8}$ ... ..	.140625	$\frac{5}{8}$ ... ..	.625
$\frac{5}{2}$ ... ..	.15625	$\frac{1}{2}$ ... ..	.5
$\frac{11}{4}$ ... ..	.171875	$\frac{3}{2}$ ... ..	.75
... ..	.1875	... ..	.875
$\frac{13}{4}$ ... ..	.203125	$\frac{1}{4}$ ... ..	.25
$\frac{7}{2}$ ... ..	.21875	$\frac{3}{4}$ ... ..	.75
$\frac{15}{4}$ ... ..	.234375	... ..	.875
... ..	.25	... ..	.875
$\frac{17}{4}$ ... ..	.265625	$\frac{1}{2}$ ... ..	.5
$\frac{9}{2}$ ... ..	.28125	$\frac{3}{2}$ ... ..	.75
$\frac{19}{4}$ ... ..	.296875	... ..	.875
... ..	.3125	... ..	.875
$\frac{21}{4}$ ... ..	.328125	$\frac{1}{4}$ ... ..	.25
$\frac{5}{2}$ ... ..	.34375	$\frac{3}{4}$ ... ..	.75
$\frac{23}{4}$ ... ..	.359375	$\frac{1}{2}$ ... ..	.5
... ..	.375	... ..	.875
$\frac{25}{4}$ ... ..	.390625	$\frac{3}{4}$ ... ..	.75
$\frac{13}{2}$ ... ..	.40625	$\frac{1}{2}$ ... ..	.5
$\frac{27}{4}$ ... ..	.421875	$\frac{3}{2}$ ... ..	.75
... ..	.4375	... ..	.875
$\frac{29}{4}$ ... ..	.453125	$\frac{1}{4}$ ... ..	.25
$\frac{15}{2}$ ... ..	.46875	$\frac{3}{4}$ ... ..	.75
$\frac{31}{4}$ ... ..	.484375	$\frac{1}{2}$ ... ..	.5
... ..	.5	... ..	.875

TABLE XV.

THE FOLLOWING RATES OF EXCHANGE WERE QUOTED IN THE "TIMES" OF APRIL 9TH, 1897; THE RATIO OF SILVER TO 1 OF GOLD IN LONDON BEING 33'23.

EXCHANGE ON LONDON AT DATES APRIL 6TH.

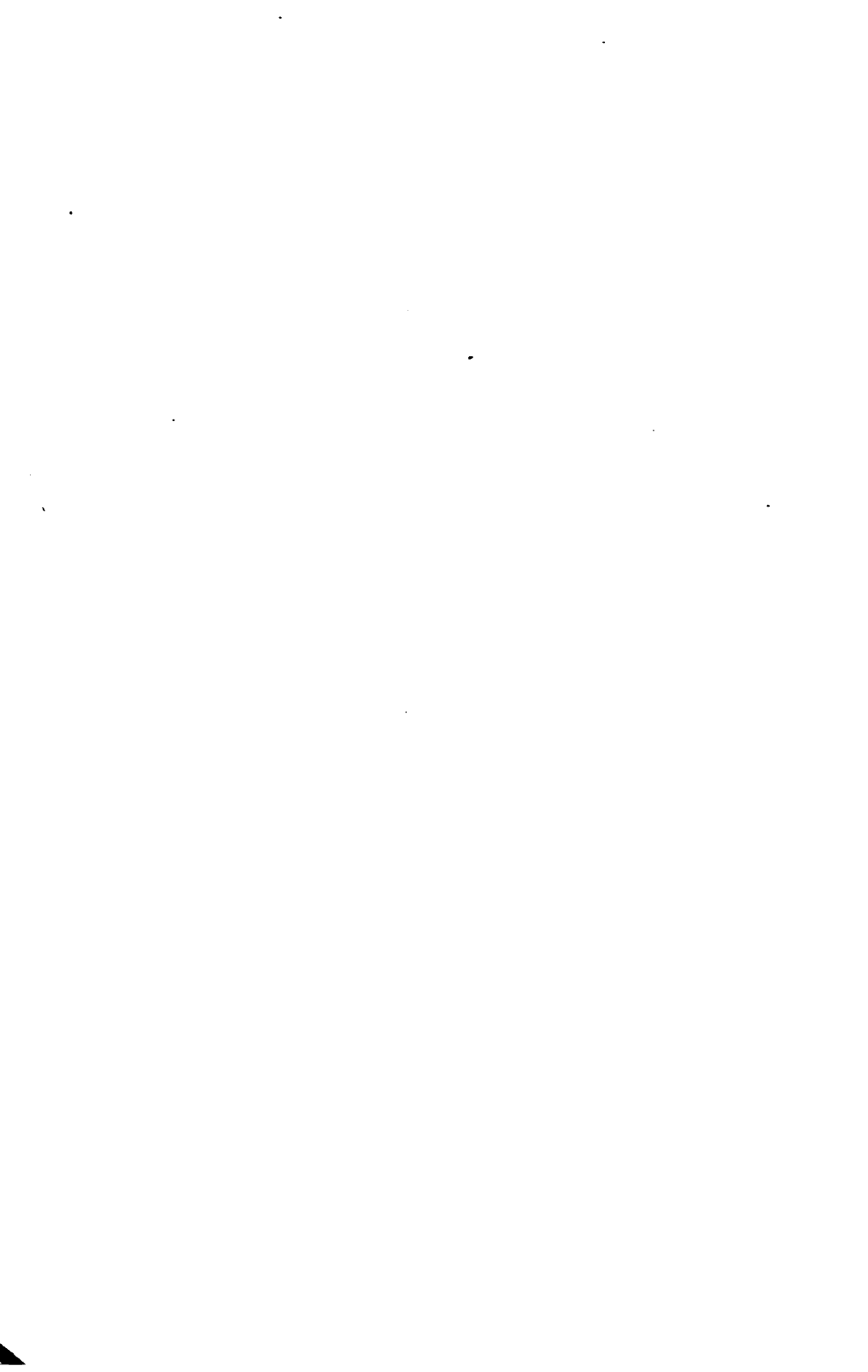
Paris cheques	25f 13 $\frac{1}{2}$ c
Brussels „	25f 17 $\frac{1}{2}$ c
Berlin, sight	20m 39pf
Vienna „	11fl 95 $\frac{1}{2}$
Amsterdam, sight	12fl 09 $\frac{1}{4}$
Italy „	26 lire 53
Lisbon „	36 $\frac{1}{2}$ pence
St. Petersburg	93r 95
Bombay TT	15 $\frac{1}{32}$ pence
Calcutta „	„
Hong Kong 4m sight	24 $\frac{1}{2}$ pence
Shanghai TT	33 $\frac{1}{2}$ „
Yokohama 4m sight	24 $\frac{1}{2}$ „
Rio de Janeiro	8 „
Valparaiso	17 $\frac{1}{8}$ „
Buenos Ayres	196 per cent. premium
„ Paper dollar	16'08 pence

COURSE OF EXCHANGE APRIL 8TH, 1897.

Amsterdam and Rotterdam	12.1 $\frac{3}{4}$ to 2 $\frac{1}{2}$ c
3 mos.	12.3 $\frac{1}{4}$ „ 4c
Antwerp and Brussels „	25.28 $\frac{1}{4}$ „ 33 $\frac{1}{4}$ c
Hamburg	20.53 „ 20.57
Berlin and German Bk. places	20.54 „ 20.58
Paris cheques	25.12 $\frac{1}{2}$ „ 17 $\frac{1}{2}$ c
3 mos.	25.27 $\frac{1}{2}$ „ 32 $\frac{1}{2}$ c
Marseilles „	25.27 $\frac{1}{2}$ „ 32 $\frac{1}{2}$
Austria „	12.10 „ 12.12 $\frac{1}{2}$
Moscow „	25 „ 25 $\frac{1}{8}$
St. Petersburg 3 mos.	25 $\frac{1}{8}$ „ 25 $\frac{1}{8}$
Genoa „	26.76 $\frac{1}{4}$ „ 86 $\frac{1}{4}$ c
Leghorn „	„ „
Naples „	„ „
Madrid „	36 $\frac{1}{8}$ „ 37 $\frac{1}{8}$
Lisbon „	35 „ 35 $\frac{1}{4}$
Oporto „	„ „
Copenhagen „	18.32 „ 18.36
Christiania „	„ „
Stockholm „	„ „

These last are London quotations for drafts upon the countries named. It should be noticed that it is only between Russia and the British Isles that the exchanges are

worked upon the scientific principle ; the quotation in Russia is fluctuating roubles, &c., for one pound, and in the British Isles fluctuating pence for a rouble. Mist, confusion, and error are swept away by this mode of quoting and working the exchanges. There is no puzzle as to whether the quotation is to be worked as a multiplier or a divisor of the sum to be exchanged. No doubt instruction in the course of time will put the increasing mass of travellers upon an equal footing with the money-changers, to the benefit of the former and the chagrin of the latter.



SECTION IV.

MULTIPLES OF
198 FIGURES

WHICH REPRESENT THE MINT-ISSUE WEIGHT
IN DECIGRAMS
OF PURE METAL COMPOSING
SEVENTEEN GOLD MEASURES OF VALUE.

ALSO

TWELVE SILVER MEASURES OF VALUE
AND CHIEF SILVER MONEYS OF ACCOUNT OF THE WORLD,
TWENTY-NINE MONETARY SIGNS FOR ONE DECIGRAM OF
PURE GOLD AND SILVER IN EACH SYSTEM.
THE KILOGRAMS AND TONNAGE OF 1,000,000 OF EACH
OF THE GOLD MEASURES OF VALUE AND EACH
OF THE SILVER MEASURES OF VALUE.

SECTION IV.

JUDGING by his own experience of the darkness he was in whilst for many years a worker of the colonial exchanges in India, compared with the light he now enjoys, the author cannot too highly recommend the working of all exchanges by weights of pure metal, not only for the accuracy of the method, but also for clearing the mind in preparation for the reception of the science of money.

Two examples of the use of these multiples may be given.

Desired to know the German monetary sign for the weight of pure gold indicated by £4365 in the British Isles. The formula is $\frac{113'001605}{5'531307}$ of £4365. Answer, 89,174'580 marks.

The use of these multiples to the second decimal place in the tables furnishes a closely approximate answer. $\frac{113'00}{5'53}$ of £4365. Answer, 89,174'503 marks. This is not equal to that obtained by the use of the full multiples by about 1 per million marks.

The weights of the world's present and prospective gold and silver chief moneys of account are presented in decigrams, as more available for the whole world than in troy grains. The monetary sign for 1 decigram in each system is also given. The multiples of each in each system are given to facilitate the working of problems.

TABLE XVI.

GOLD MEASURES OF VALUE.

Multiples of decigrams and the monetary signs for 1 decigram of gold in each chief gold money of account in use^a or intended to be used in the world.

I. EGYPTIAN. ^a		II. BRITISH ISLES. ^a	
I. 74'375	13'445378 ochrs.	73'223817	3'277622 pence.
II. 148'750	26'890756 "	146'447635	6'555244 "
III. 223'125	40'336134 "	219'671453	9'832866 "
IV. 297'500	53'781512 "	292'895271	13'110488 "
V. 371'875	67'226890 "	366'119088	16'388110 "
VI. 446'250	80'672268 "	439'342906	19'665732 "
VII. 520'625	94'117646 "	512'566724	22'943354 "
VIII. 595'000	107'563024 "	585'790541	26'220976 "
IX. 669'375	121'008402 "	659'014359	29'498598 "

III. TURKEY.^a

I.	66°146666	60°471678	piastres.	16°257083	61°511648	reis.
II.	132°293333	120°943356	"	32°514166	123°023296	"
III.	198°440000	181°415034	"	48°771250	184°534944	"
IV.	264°586666	248°886712	"	65°028333	246°046592	"
V.	330°733333	302°358390	"	81°285417	307°558240	"
VI.	396°880000	362°830068	"	97°542500	369°069888	"
VII.	463°026666	423°301746	"	113°799583	430°581536	"
VIII.	529°173333	483°773424	"	130°056667	492°093184	"
IX.	595°320000	544°245102	"	146°313750	553°604832	"

IV. PORTUGAL.

V. URUGUAY.

I.	15°56149	6°42612	cents.	15°046308	6°646148	cents.
II.	31°12298	12°85224	"	30°092617	13°292296	"
III.	46°68447	19°27836	"	45°138926	19°938444	"
IV.	62°24596	25°70448	"	60°185235	25°584592	"
V.	77°80745	32°13060	"	75°231544	33°230740	"
VI.	93°36894	38°55672	"	90°277852	39°876888	"
VII.	108°93043	44°98284	"	105°324161	46°523036	"
VIII.	124°49192	51°40896	"	120°370470	53°169184	"
IX.	140°05341	57°83508	"	135°416779	59°815332	"

VI. UNITED STATES N.A.^a

VII. ARGENTINA.

I.	14°516129	6°88893	cents.	8°217791	121°687202	reis.
II.	29°032258	13°77786	"	16°435583	243°374404	"
III.	43°548387	20°66679	"	24°653375	365°061606	"
IV.	58°064516	27°55572	"	32°871166	486°748808	"
V.	72°580645	34°44465	"	41°088958	608°436010	"
VI.	87°096774	41°33358	"	49°306750	730°123212	"
VII.	101°612903	48°22251	"	57°524541	851°810414	"
VIII.	116°129032	55°11144	"	65°742333	973°497616	"
IX.	130°645161	62°00037	"	73°960125	1095°184818	"

VIII. BRAZIL.

IX. RUSSIA.

I.	7°741206	12°917884	kopecks.	7°5	13°333333	sens.
II.	15°482412	25°835768	"	14°0	26°666666	"
III.	23°223618	38°753652	"	22°5	39°999999	"
IV.	30°964824	51°671536	"	30°0	53°333332	"
V.	38°706030	64°589420	"	37°5	66°666665	"
VI.	46°447236	77°507304	"	45°0	79°999998	"
VII.	54°188442	90°425188	"	52°5	93°333331	"
VIII.	61°929648	103°343072	"	60°0	106°666664	"
IX.	69°670854	116°260956	"	67°5	119°999997	"

X. JAPAN.

XI. NETHERLANDS.*

I.	6'048	16'534391 cents.
II.	12'096	33'068782 "
III.	18'144	49'603173 "
IV.	24'192	66'137564 "
V.	30'240	82'671955 "
VI.	36'288	99'206346 "
VII.	42'336	115'740737 "
VIII.	48'384	132'257128 "
IX.	54'432	148'809519 "

XII. CHILI.

5'491782	18'209025 cents.
10'983564	36'418050 "
16'475346	54'627075 "
21'967128	72'836100 "
27'458910	91'045125 "
32'950692	109'254150 "
38'442474	127'463175 "
43'934256	145'672200 "
49'426038	163'881225 "

XIII. BRITISH INDIA.

I.	4'881587	3'277622 annas.
II.	9'763175	6'555244 "
III.	14'644763	9'832866 "
IV.	19'526351	13'110488 "
V.	24'407939	16'388110 "
VI.	29'289527	19'665732 "
VII.	34'171114	22'943354 "
VIII.	39'052702	26'220976 "
IX.	43'934290	29'498598 "

XIV. SCANDINAVIA.*

4'032258	24'8 ores.
8'064516	49'6 "
12'096774	74'4 "
16'129032	99'2 "
20'161290	124'0 "
24'193548	148'8 "
28'225806	173'6 "
32'258064	198'4 "
36'290322	223'2 "

XV. GERMANY.*

I.	3'584224	27'900043 pfennigs.
II.	7'168448	55'800086 "
III.	10'752672	83'700129 "
IV.	14'336896	111'600172 "
V.	17'921120	139'500215 "
VI.	21'505344	167'400258 "
VII.	25'089568	195'300301 "
VIII.	28'673792	223'200344 "
IX.	32'258016	251'100387 "

XVI. AUSTRIA-HUNGARY.

3'048780	32'8 heller.
6'097560	65'6 "
9'146341	98'4 "
12'195121	131'2 "
15'243902	164'0 "
18'292682	196'8 "
21'341463	229'6 "
24'390243	262'4 "
27'439024	295'2 "

XVII. FRANCE.*

I.	2'903226	34'444444 centimes.
II.	5'806452	68'888888 "
III.	8'709678	103'333333 "
IV.	11'612904	137'777777 "
V.	14'516130	172'222222 "
VI.	17'419355	206'666666 "
VII.	20'322581	241'111111 "
VIII.	23'225807	275'555555 "
IX.	26'129033	309'999999 "

TABLE XVII.

Kilograms and tons of pure gold in 1,000,000 present and prospective chief standard gold moneys of account on issue from the mints in 19 gold monetary systems.

1000 kilograms = '98420591 ton avoirdupois.

	Kilograms.	Tons.
I. Egyptian pound	7437'5	7'320032
II. British pound	7322'381772	7'206734
III. Turkish pound	6614'666667	6'510229
IV. Portuguese milreis	1625'70834	1'600003
V. Uruguay peso	1556'149	1'531568
VI. Newfoundland dollar	1525'497	1'501408
VII. United States N.A. dollar	1504'630881	1'479591
VIII. Argentine peso	1451'612903	1'428686
IX. Cuban "	1393'3	1'371294
X. Chilian "	1372'877	1'350822
XI. " new condor	549'178208	'540504
XII. Russian rouble	1161'18	1'142840
XIII. " " new	774'1206	'761894
XIV. Brazilian milreis	821'779167	'808798
XV. Japanese yen	1500'	1'476309
XVI. " " new	750'	'738154
XVII. Austrian florin	609'75	'600119
XVIII. " crown, new	304'878048	'300068
XIX. British India rupee	712'7866	'701528
XX. " " " new	488'158784	'480448
XXI. Holland guilder	604'8	'595248
XXII. Scandinavia crown	403'225806	'396831
XXIII. Germany mark	358'422390	'352762
XXIV. France franc	290'322580	'285736

TABLE XVIII.

MEASURES OF VALUE AND TOKENS THAT ARE TO BE.^a

Multiples of decigrams and the monetary signs for 1 decigram of silver in each chief silver money of account and tokens that are to be in the world.

I. SHANGHAE.

I.	334'6254	2'988416	cash.
II.	669'2508	5'976832	"
III.	1003'5762	8'965248	"
IV.	1338'5016	11'953664	"
V.	1673'1270	14'942080	"
VI.	2007'7524	17'930496	"
VII.	2342'3778	20'918912	"
VIII.	2677'0032	23'907328	"
IX.	3011'6286	26'895744	"

II. MEXICO.

	244'409184	40915	cents.
	488'818369	81830	"
	733'227554	1'22745	"
	977'636739	1'63660	"
	1222'045924	2'04575	"
	1466'455100	2'45490	"
	1710'864294	2'86405	"
	1955'273470	3'27320	"
	2199'682664	3'68235	"

III. JAPAN.^a

I.	242'60715	41218	sens.
II.	485'21436	82436	"
III.	727'82145	1'23655	"
IV.	970'42860	1'64873	"
V.	1213'03575	2'06092	"
VI.	1455'64290	2'47310	"
VII.	1698'25005	2'88528	"
VIII.	1940'85720	3'29747	"
IX.	2183'46435	3'70965	"

IV. JAVA.

	236'25	42328	cents.
	472'50	84656	"
	708'75	1'26984	"
	945'00	1'69312	"
	1181'25	2'11640	"
	1417'50	2'53968	"
	1653'75	2'96296	"
	1890'00	3'38624	"
	2126'25	3'80952	"

V. PHILIPPINES.

I.	233'64	428001	cents.
II.	467'28	856002	"
III.	700'92	1'284003	"
IV.	934'56	1'712004	"
V.	1168'20	2'140005	"
VI.	1401'84	2'568006	"
VII.	1635'48	2'996007	"
VIII.	1869'12	3'424008	"
IX.	2102'76	3'852009	"

VI. COLUMBIA, U.S.

	225'	444444	cents.
	450'	888888	"
	675'	1'333333	"
	900'	1'777777	"
	1125'	2'222222	"
	1350'	2'666666	"
	1575'	3'111111	"
	1800'	3'555555	"
	2025'	3'999999	"

VII. BOLIVIA.

I.	202'5	49382	cents.
II.	405'0	98764	"
III.	607'5	1'48146	"
IV.	810'0	1'97528	"
V.	1012'5	2'46910	"
VI.	1215'0	2'96292	"
VII.	1417'5	3'45674	"
VIII.	1620'0	3'95056	"
IX.	1822'5	4'44438	"

VIII. RUSSIA.^a

	179'960937	555675	copecks.
	359'921874	1'111350	"
	539'882811	1'667025	"
	719'843748	2'222700	"
	899'804685	2'778375	"
	1079'765622	3'334050	"
	1259'726559	3'889725	"
	1439'687496	4'425400	"
	1619'648433	5'001075	"

IX. SIAM.			X. AUSTRIA-HUNGARY.*		
I.	146'645531	218213 phai-nungs.	111'111111	9' kreutzers.	
II.	293'291062	436426 "	222'222222	18' "	
III.	439'936593	654639 "	333'333333	27' "	
IV.	586'582124	872852 "	444'444444	36' "	
V.	733'227655	1'091065 "	555'555555	45' "	
VI.	879'873186	1'309278 "	666'666666	54' "	
VII.	1026'518717	1'527491 "	777'777777	63' "	
VIII.	1173'164248	1'745704 "	888'888888	72' "	
IX.	1219'809779	1'963917 "	999'999999	81' "	

XI. BRITISH INDIA.*			XII. PERSIA.		
I.	106'918215	1'79576 pies.	41'429836	48274 shahis.	
II.	213'836430	3'59152 "	82'859672	96548 "	
III.	320'754645	5'38728 "	124'289509	1'44822 "	
IV.	427'672860	7'18304 "	165'719345	1'93096 "	
V.	534'591075	8'97880 "	207'149181	2'41370 "	
VI.	641'509291	10'77456 "	248'579018	2'89644 "	
VII.	748'427506	12'57032 "	290'008854	3'37918 "	
VIII.	855'345721	14'36608 "	331'438690	3'86192 "	
IX.	962'263936	16'16184 "	372'868526	4'34466 "	

TABLE XIX.

Kilograms and tons of pure silver in the present and past 1,000,000 chief standard silver moneys of account on issue from the mints in 12 silver monetary systems.

1000 kilograms = 98420591 ton avoirdupois.

	Kilograms.	Tons.
Shanghae tael	33462'54	32'934029
Trade dollar	25529'192	25'126080
Mexican dollar	24440'918	24'054988
Japanese yen	24260'715	23'877534
Javanese rix dollar	23625'000	23'251864
Philippine dollar	23364'000	22'994986
Columbia United States sol	22500'000	22'144639
Bolivian boliviano	20250'000	19'930169
Russian rouble	17996'093	17'711862
Siamese tical	14664'553	14'43242
Austrian florin	11111'111	10'935621
British Indian rupee	18691'821	10'422237
Persian kran	4142'984	4'039470

MULTIPLES OF THE THIRTEEN CONSTANTS TO BE USED AS DIVISORS OF THE PRICE OF GOLD IN THE THIRTEEN SILVER MONETARY SYSTEMS OF THE WORLD TO DETERMINE THE RATIO BETWEEN THE METALS.

	Shanghae tael.	Trade dollar.	Mexico peso.	Japan yen.
I.	1'1206023	40'826	40'914994	15'45709
II.	2'2412046	81'652	81'829988	30'91418
III.	3'3618069	122'478	122'744982	46'37127
IV.	4'4824092	163'304	163'659976	61'82836
V.	5'6030115	204'130	204'574970	77'28554
VI.	6'7236138	244'956	245'489964	92'74204
VII.	7'8442161	285'782	286'404958	108'19963
VIII.	8'9648184	326'608	327'319952	123'65672
IX.	10'0854207	367'434	368'234946	139'11381

	Java rixdollar.	Philippines dollar.	Columbia U.S. sol.	Bolivia bolvianos.
I.	42'328442	42'800906	44'444444	49'382716
II.	84'656884	85'601812	88'888888	98'765432
III.	126'985326	128'402718	133'333332	148'148148
IV.	169'313768	171'203624	177'777776	197'530864
V.	211'642210	214'004530	222'222220	246'913580
VI.	253'970652	256'805436	266'666664	296'296296
VII.	296'299094	299'606342	311'111108	345'679012
VIII.	338'627536	342'407248	355'555552	395'061728
IX.	380'955978	385'208154	399'999996	444'444444

	Russia kopeck.	Siam tical.	Austria-Hungary florin.	Brit. India rupee.
I.	23'704185	1'0428306	45'	1'090909
II.	47'408370	2'0856612	90'	2'181818
III.	71'112555	3'1284918	135'	3'272727
IV.	94'816740	4'1713224	180'	4'363636
V.	118'520925	5'2141530	225'	5'454545
VI.	142'225110	6'2569836	270'	6'545454
VII.	165'929295	7'2998142	315'	7'636363
VIII.	189'633480	8'3426448	360'	8'727272
IX.	213'337665	9'3854754	405'	9'818181

	Persia kran
I.	1'1111111
II.	2'2222222
III.	3'3333333
IV.	4'4444444
V.	5'5555555
VI.	6'6666666
VII.	7'7777777
VIII.	8'8888888
IX.	9'9999999

SECTION V.

I. 272 FIXED GOLD PARS OF EXCHANGE.

Being signs in each of the seventeen gold monetary systems, in the whole or decimal parts of each of the seventeen chief gold moneys of account at the mint issue weight in pure gold, for the mint issue of pure gold in each of the other sixteen chief gold moneys of account. Table XX.

II. MULTIPLES OF THE 272 FIXED GOLD PARS OF EXCHANGE. TABLE XXI.

III. 208 FIXED GOLD PARS OF EXCHANGE BETWEEN 17 GOLD AND 12 SILVER SYSTEMS AT THE RATIO OF 1 PART OF GOLD TO 1 PART OF SILVER.

Being signs in each of the seventeen gold monetary systems, in the whole or decimal parts of each of the seventeen chief gold moneys of account at the mint issue weight of pure gold, for the mint issue weight of pure silver in each of twelve chief silver moneys of account; at the ratio of 1 part of gold to 1 part of silver. Table XXII.

IV. MULTIPLES OF THE 208 FIXED GOLD PARS OF EXCHANGE BETWEEN 17 GOLD AND 12 SILVER SYSTEMS. TABLE XXIII.

V. 132 FIXED SILVER PARS OF EXCHANGE.

Being signs in each of the twelve silver monetary systems, in the whole or decimal parts of each of the twelve chief silver moneys of account at mint issue weight of pure silver, for the mint issue weight of pure silver in each of the other eleven chief silver moneys of account. Table XXIV.

VI. MULTIPLES OF 132 FIXED SILVER PARS OF
EXCHANGE. TABLE XXV.

VII. 208 FIXED SILVER PARS OF EXCHANGE BETWEEN
12 SILVER AND 17 GOLD SYSTEMS AT THE RATIO OF
1 PART OF SILVER TO 1 PART OF GOLD.

Being signs in each of the twelve monetary systems, in the whole or decimal parts of each of the twelve chief silver moneys of account at the mint issue weight of pure silver, for the mint issue weight of pure gold in each of the seventeen chief gold moneys of account ; at the ratio of 1 part of silver to 1 part of gold. Table XXVI.

VIII. MULTIPLES OF THE 208 FIXED SILVER PARS OF
EXCHANGE BETWEEN 12 SILVER AND 17 GOLD SYSTEMS.
TABLE XXVII.

The author is indebted to Mr. F. West, Computist to the India Office, for the accuracy of Tables XX., XXII., XXIV., and XXVI.; also for equivalents of troy grains and decigrams in units of the different countries, as well as units of the different countries in troy and decigram weights, founded upon data supplied to him.

The greatest pains have been taken to secure accuracy in the presentation of the following 820 multiples. Should any error be discovered, a favour would be conferred upon the author by communicating the fact to him.

EXAMPLE OF THE USE OF THE MULTIPLES OF THE 272
FIXED GOLD PARS OF EXCHANGE. TABLE XXI.

Find the equivalent in British pounds to francs 7,895,786.49.
Under British equivalents and French francs will be found :

Francs 7,000,000	=	£277,540.9
" 800,000	=	31,718.96
" 90,000	=	3,568.383
" 5,000	=	198.243
" 700	=	27.754
" 80	=	3.171
" 6	=	.237
" .4	=	.015
" .09	=	.003
		<hr/>
		£313,057.666
		<hr/>

Check this by weight. Multiply the francs by the mint issue weight of gold in the franc, and divide by the mint issue weight of gold in the pound. The sum is:—

$$\frac{7,895,786.49 \times 2.903226}{73.223817} = \text{£}313,057.32 : \text{Ans.}$$

The addition of the multiples exceeds the other working by 1 per million.

Since all the currencies in use in the world are based upon weights of metal presented in these eight Tables, the metal pars must be obtained, and the percentage deviation resulting from inconvertible paper or a fictitious value conferred upon a weight of metal must be applied to arrive at the equivalents of the day between the seven descriptions of current intermediaries.



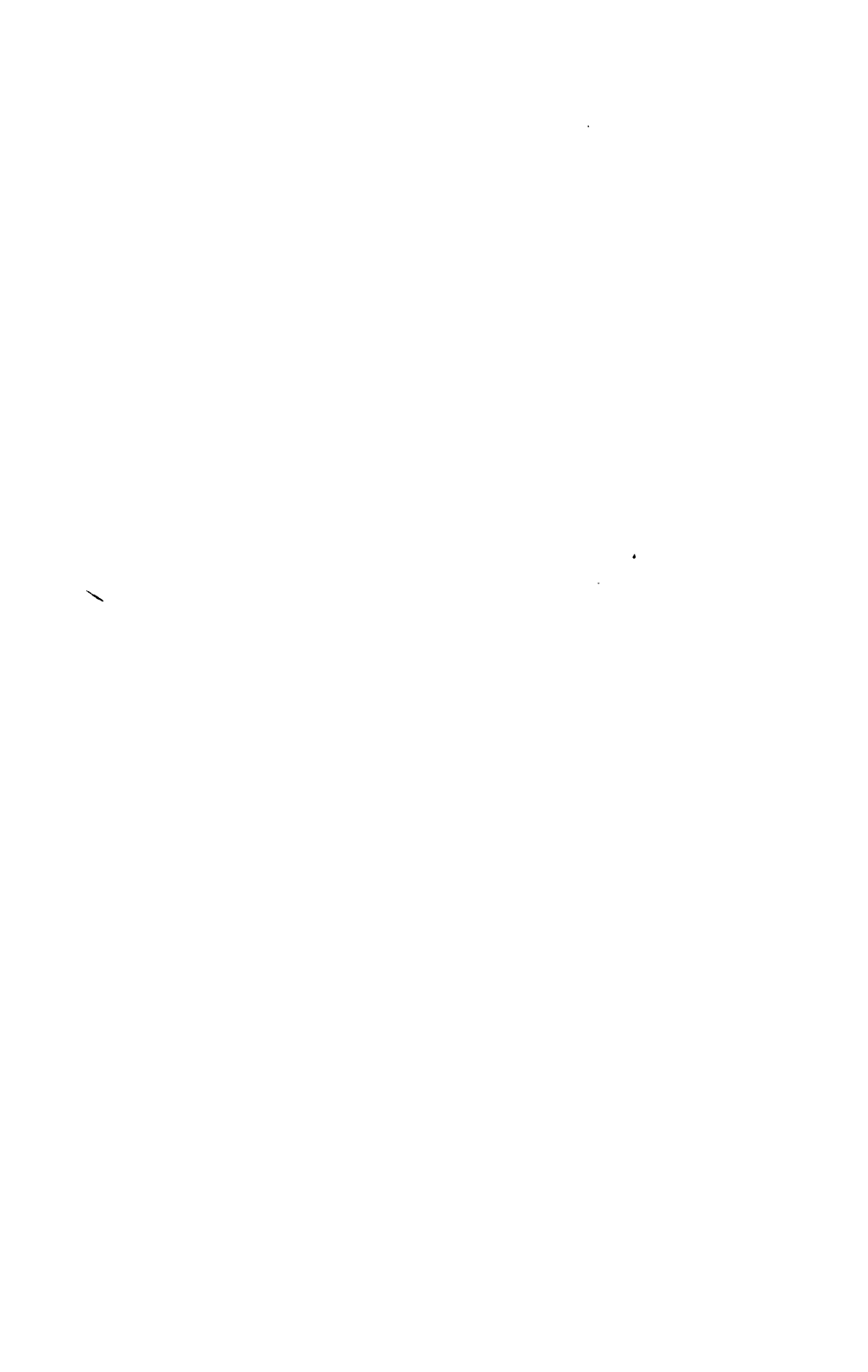


TABLE XXI.

Multiples of the Monetary signs for the mint issue weight of pure gold in each of 17 chief gold moneys of account, for the mint issue weight of pure gold in 16 other chief gold moneys of account.

NO. I. EGYPTIAN EQUIVALENTS TO

	British £.	Turkish £.	Portuguese milreis.	Uruguayan peso.
1.	'9845219	'8893669	'2185826	'2092301
2.	1'9690438	1'7787338	'4371652	'4184602
3.	2'9535657	2'6681007	'6557478	'6276903
4.	3'9380876	3'5574676	'8743304	'8369204
5.	4'9226095	4'4468345	1'0929130	1'0461505
6.	5'9071314	5'3362014	1'3114956	1'2553806
7.	6'8916533	6'2255683	1'5300782	1'4646107
8.	7'8761752	7'1149352	1'7486608	1'6738408
9.	8'8606971	8'0043021	1'9672434	1'8830709

	U.S.A. dollar.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	'2023033	'1951748	'1104913	'1040834
2.	'4046066	'3903496	'2209826	'2081668
3.	'6069099	'5855244	'3314739	'3122502
4.	'8092132	'7806992	'4419652	'4163336
5.	1'0115165	'9758740	'5524565	'5204170
6.	1'2138198	1'1710488	'6629478	'6245004
7.	1'4161231	1'3662236	'7734391	'7285838
8.	1'6184264	1'5613984	'8839304	'8326672
9.	1'8207297	1'7565732	'9944217	'9367506

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	'1008403	'0813176	'0738391	'0656348
2.	'2016806	'1626352	'1476782	'1312696
3.	'3025209	'2439528	'2215173	'1969044
4.	'4033612	'3252704	'2953564	'2625392
5.	'5042015	'4065880	'3691955	'3281740
6.	'6050418	'4879056	'4430346	'3938088
7.	'7058821	'5692232	'5168737	'4594436
8.	'8067224	'6505408	'5907128	'5250784
9.	'9075627	'7318584	'6645519	'5907132

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	*0542152	*0481912	*0409920	*0390350
2.	*1084304	*0963824	*0819840	*0780700
3.	*1626456	*1445736	*1229760	*1171050
4.	*2168608	*1927648	*1639680	*1561400
5.	*2710760	*2409560	*2049600	*1951750
6.	*3252912	*2891472	*2459520	*2342100
7.	*3795064	*3373384	*2869440	*2732450
8.	*4337216	*3855296	*3279360	*3122800
9.	*4879368	*4337208	*3689280	*3513150

NO. 2. BRITISH EQUIVALENTS TO

	Egyptian £.	Turkish £.	Portuguese milreis.	Uruguayan peso.
1.	*1015721	*9033491	2220191	*2125195
2.	2031442	18066982	4440382	*4250390
3.	3047163	27100473	6660573	*6375585
4.	4062884	36133964	8880764	*8500780
5.	5078605	45167455	11100955	1*0625975
6.	6094326	54200946	13321146	1*2751170
7.	7110047	63234437	15541337	1*4876365
8.	8125768	72267928	17761528	1*7001560
9.	9141489	81301419	19981719	1*9126755

	U.S.A. dollar.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	*2054838	*1982433	*1122284	*1057198
2.	*4109676	*3964866	*2244568	*2114396
3.	*6164514	*5947299	*3366852	*3171594
4.	*8219352	*7929732	*4489136	*4228792
5.	1*0274190	*9912165	*5611420	*5285990
6.	1*2329028	1*1894598	*6733704	*6343188
7.	1*4383866	1*3877031	*7855988	*7400386
8.	1*6438704	1*5859464	*8978272	*8457584
9.	1*8493542	1*7841897	1*0100556	*9514782

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	*1024257	*0825961	*0749999	*0666667
2.	*2048514	*1651922	*1499998	*1333334
3.	*3072771	*2477883	*2249997	*2000001
4.	*4097028	*3303844	*2999996	*2666668
5.	*5121285	*4129805	*3749995	*3333335
6.	*6145542	*4955766	*4499994	*4000002
7.	*7169799	*5781727	*5249993	*4666669
8.	*8194056	*6607688	*5999992	*5333336
9.	*9218313	*7433649	*6749991	*6000003

FIXED GOLD EQUIVALENTS

197

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	'0550676	'0489489	'0416365	'0396487
2.	'1101352	'0978978	'0832730	'0792974
3.	'1652028	'1468467	'1249095	'1189461
4.	'2202704	'1957956	'1665460	'1585948
5.	'2753380	'2447445	'2081825	'1982435
6.	'3304056	'2936934	'2498190	'2378922
7.	'3854732	'3426423	'2914555	'2775409
8.	'4405408	'3915912	'3330920	'3171896
9.	'4956084	'4405401	'3747285	'3568383

No. 3. TURKISH EQUIVALENTS TO

	Egyptian £.	British £.	Portuguese milreis.	Uruguayan peso.
1.	1'124395	1'106992	'2457733	'2352574
2.	2'248790	2'213984	'4915466	'4705148
3.	3'373185	3'320976	'7373199	'7057722
4.	4'497580	4'427968	'9830932	'9410296
5.	5'621975	5'534960	1'2288665	1'1762870
6.	6'746370	6'641952	1'4746398	1'4115444
7.	7'870765	7'748944	1'7204131	1'6468018
8.	8'995160	8'855936	1'9661864	1'8820592
9.	10'119555	9'962928	2'2119597	2'1173166

	U.S.A. dollar.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	'2274689	'2194537	'1242359	'1170309
2.	'4549378	'4389074	'2484718	'2340618
3.	'6824067	'6583611	'3727077	'3510927
4.	'9098756	'8778148	'4969436	'4681236
5.	1'1373445	1'0972685	'6211795	'5851545
6.	1'3648134	1'3167222	'7454154	'7021854
7.	1'5922823	1'5361759	'8696513	'8192163
8.	1'8197512	1'7556296	'9938872	'9362472
9.	2'0472201	1'9750833	1'1181231	1'0532781

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	'1133844	'0914332	'0830243	'0737995
2.	'2267688	'1828664	'1660486	'1475990
3.	'3401532	'2742996	'2490729	'2213985
4.	'4535376	'3657328	'3320972	'2951980
5.	'5669220	'4571660	'4151215	'3689975
6.	'6803064	'5485992	'4981458	'4427970
7.	'7936908	'6400324	'5811701	'5165965
8.	'9070752	'7314656	'6641944	'5903960
9.	1'0204596	'8228988	'7472187	'6641955

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	'0609594	'0541860	'0460912	'0438907
2.	'1219188	'1083720	'0921824	'0877814
3.	'1828782	'1625580	'1382736	'1316721
4.	'2438376	'2167440	'1843648	'1755628
5.	'3047970	'2709300	'2304560	'2194535
6.	'3657564	'3251160	'2765472	'2633442
7.	'4267158	'3793020	'3226384	'3072349
8.	'4876752	'4334880	'3687296	'3511256
9.	'5486346	'4876740	'4148208	'3950163

NO. 4. PORTUGUESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Uruguayan peso.
1.	4'574929	4'504118	4'068791	'9572129
2.	9'149858	9'008236	8'137582	1'9144258
3.	13'724787	13'512354	12'206373	2'8716387
4.	18'299716	18'016472	16'275164	3'8288516
5.	22'874645	22'520590	20'343955	4'7860645
6.	27'449574	27'024708	24'412746	5'7432774
7.	32'024503	31'528826	28'481537	6'7004903
8.	36'599432	36'032944	32'550328	7'6577032
9.	41'174361	40'537062	36'619119	8'6149161

	U.S.A. dollar.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	'9255233	'8929110	'5054899	'4761744
2.	1'8510466	1'7858220	1'0109798	'9523488
3.	2'7765699	2'6787330	1'5164697	1'4285232
4.	3'7020932	3'5716440	2'0219596	1'9046976
5.	4'6276165	4'4645550	2'5274495	2'3808720
6.	5'5531398	5'3574660	3'0329394	2'8570464
7.	6'4786631	6'2503770	3'5384293	3'3332208
8.	7'4041864	7'1432880	4'0439192	3'8093952
9.	8'3297097	8'0361990	4'5494091	4'2855696

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	'4613374	'3720225	'3378086	'3002745
2.	'9226748	'7440450	'6756172	'6005490
3.	1'3840122	1'1160675	1'0134258	'9008235
4.	1'8453496	1'4880900	1'3512344	1'2010980
5.	2'3066870	1'8601125	1'6890430	1'5013725
6.	2'7680244	2'2321350	2'0268516	1'8016470
7.	3'2293618	2'6041575	2'3646602	2'1019215
8.	3'6906992	2'9761800	2'7024688	2'4021960
9.	4'1520366	3'3482025	3'0402774	2'7024705

FIXED GOLD EQUIVALENTS

199

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	2480308	2204715	1875355	1785822
2.	4960616	4409430	3750710	3571644
3.	7440924	6614145	5626065	5357466
4.	9921232	8818860	7501420	7143288
5.	12401540	11023575	9376775	8929110
6.	14881848	13228290	11252130	10714932
7.	17362156	15433005	13127485	12500754
8.	19842464	17637720	15002840	14286576
9.	21322772	19842435	16878195	16072398

NO. 5. URUGUAYAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	4779427	4705450	4250664	1044700
2.	9558854	9410900	8501328	2089400
3.	14338281	14116350	12751992	3134100
4.	19117708	18821800	17002656	4178800
5.	23897135	23527250	21253320	5223500
6.	28676562	28232700	25503984	6268200
7.	33455989	32938150	29754648	7312900
8.	38235416	37643600	34005312	8357600
9.	43014843	42349050	38255976	9402300

	U.S.A. dollar.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	09668939	9328239	5280851	4974592
2.	19337878	18656478	10561702	9949184
3.	29006817	27984717	15842553	14923776
4.	38675756	37312956	21123404	19898368
5.	48344695	46641195	26404255	24872960
6.	58013634	55969434	31685106	29847552
7.	67682573	65297673	36965957	34822144
8.	77351512	74625912	42246808	39796736
9.	87020451	83954151	47527659	44771328

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	4819590	3886517	3529085	3136967
2.	9639180	7773034	7058170	6273934
3.	14458770	11659551	10587255	9410901
4.	19278360	15546068	14116340	12547868
5.	24097950	19432585	17645425	15684835
6.	28917540	23319102	21174510	18821802
7.	33737130	27205619	24703595	21958769
8.	38556720	31092136	28232680	25095736
9.	43376310	34978653	31761765	28232703

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	'2591177	'2303265	'1959183	'1865648
2.	'5182354	'4606530	'3918366	'3731296
3.	'7773531	'6909795	'5877549	'5596944
4.	1'0364708	'9213060	'7836732	'7462592
5.	1'2955885	1'1516325	'9795915	'9328240
6.	1'5547062	1'3819590	1'1755098	1'1193888
7.	1'8138239	1'6122855	1'3714281	1'3059536
8.	2'0729416	1'8426120	1'5673464	1'5925184
9.	2'3320593	2'0729385	1'7632647	1'6790832

No. 6. UNITED STATES, N.A., EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	4'943073	4'866563	4'396206	1'080470
2.	9'886146	9'733126	8'792412	2'160940
3.	14'829219	14'599689	13'188618	3'241410
4.	19'772292	19'466252	17'584824	4'321880
5.	24'715365	24'332815	21'981030	5'402350
6.	29'658438	29'199378	26'377236	6'482820
7.	34'601511	34'065941	30'773442	7'563290
8.	39'544584	38'932504	35'169648	8'643760
9.	44'487657	43'799067	39'565854	9'724230

	Uruguayan peso.	Argentine peso.	Brazilian milreis.	Russian rouble.
1.	1'034240	'9647634	'5461666	'5144920
2.	2'068480	1'9295268	1'0923332	1'0289840
3.	3'102720	2'8942902	1'6384998	1'5434760
4.	4'136960	3'8590536	2'1846664	2'0579680
5.	5'171200	4'8238170	2'7308330	2'5724600
6.	6'205440	5'7885804	3'2769996	3'0869520
7.	7'239680	6'7533438	3'8231662	3'6014440
8.	8'273920	7'7181072	4'3693328	4'1159360
9.	9'308160	8'6828706	4'9154994	4'6304280

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	'4984611	'4019590	'3649920	'3244376
2.	'9969222	'8039180	'7299840	'6488752
3.	1'4953833	1'2058770	1'0949760	'9733128
4.	1'9938444	1'6078360	1'4599680	1'2977504
5.	2'4923055	2'0097950	1'8249600	1'5221880
6.	2'9907666	2'4117540	2'1899520	1'9466256
7.	3'4892277	2'8137130	2'5549440	2'2710632
8.	3'9876888	3'2156720	2'9199360	2'5955008
9.	4'4861499	3'6176310	3'2849280	2'9199384

FIXED GOLD EQUIVALENTS

201

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	2679898	2382128	2026265	1929527
2.	5359796	4764256	4052530	3859054
3.	8039694	7146384	6078795	5788581
4.	1'0719592	9528512	8105060	7718108
5.	1'3399490	1'1910640	1'0131325	9647635
6.	1'6079388	1'4292768	1'2157590	1'1577162
7.	1'8759286	1'6674896	1'4183855	1'3506689
8.	2'1439184	1'9057024	1'6210120	1'5436216
9.	2'4119082	2'1439152	1'8236385	1'7365743

NO. 7. ARGENTINE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese in reis.
1.	5'123611	5'044307	4'556770	1'119932
2.	10'247222	10'088614	9'113540	2'239864
3.	15'370833	15'132921	13'670310	3'359796
4.	20'494444	20'177228	18'227080	4'479728
5.	25'618055	25'221535	22'783850	5'599660
6.	30'741666	30'265842	27'340620	6'719592
7.	35'865277	35'310149	31'897390	7'839524
8.	40'988888	40'354456	36'454160	8'959456
9.	46'102499	45'398763	41'010930	10'079388

	Uruguayan peso.	U.S.A. dollar.	Brazilian milreis.	Russian rouble.
1.	1'072014	1'036524	5'661145	5'332831
2.	2'144028	2'073048	1'1322290	1'0665662
3.	3'216042	3'109572	1'6983435	1'5998493
4.	4'288056	4'146096	2'2644580	2'1331324
5.	5'360070	5'182620	2'8305725	2'6664155
6.	6'432084	6'219144	3'3966870	3'1996986
7.	7'504098	7'255668	3'9628015	3'7329817
8.	8'576112	8'292192	4'5289160	4'2662648
9.	9'648126	9'328716	5'0950305	4'7995479

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	5'166667	4'166400	3'783228	3'362872
2.	1'0333334	8'332800	7'566456	6'725744
3.	1'5500001	1'2499200	1'1349684	1'0088616
4.	2'0666668	1'6665600	1'5132912	1'3451488
5.	2'5833335	2'0832000	1'8916140	1'6814360
6.	3'1000002	2'4998400	2'2699368	2'0177232
7.	3'6166669	2'9164800	2'6482596	2'3540104
8.	4'1333336	3'3331200	3'0265824	2'6902976
9.	4'6500003	3'7497600	3'4049052	3'0265848

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	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	2777778	2469132	2100271	2000000
2.	5555556	4938264	4200542	4000000
3.	8333334	7407396	6300813	6000000
4.	11111112	9876528	8401084	8000000
5.	13888890	12345660	10501355	10000000
6.	16666668	14814792	12601626	12000000
7.	19444446	17283924	14701897	14000000
8.	22222224	19755056	16802168	16000000
9.	25000002	2222188	18902439	18000000

No. 8. BRAZILIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	9050485	8910401	8049202	1978279
2.	18100970	17820802	16098404	3956558
3.	27151455	26731203	24147606	5934837
4.	36201940	35641604	32196808	7913116
5.	45252425	44552005	40246010	9891395
6.	54302910	53462406	48295212	11869674
7.	63353395	62372807	56344414	13847953
8.	72403880	71283208	64393616	15826232
9.	81454365	80193609	72442818	17804511

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Russian rouble.
1.	1893634	1830943	1766427	9420056
2.	3787268	3661886	3532854	18840112
3.	5680902	5492829	5299281	28260168
4.	7574536	7323772	7065708	37680224
5.	9468170	9154715	8832135	47100280
6.	11361804	10985658	10598562	56520336
7.	13255438	12816601	12364989	65940392
8.	15149072	14647544	14131416	75360448
9.	17042706	16478487	15897843	84780504

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	9126539	7359641	6682795	5940267
2.	18253078	14719282	13365590	11880534
3.	27379617	22078923	20048385	17820801
4.	36506156	29438564	26731180	23761068
5.	45632695	36798205	33413975	29701335
6.	54759234	44157846	40096770	35641602
7.	63885773	51517487	46779565	41581869
8.	73012312	58877128	53462360	47522136
9.	82138851	66236769	60145155	53462403

FIXED GOLD EQUIVALENTS

203

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	4906742	4361541	3709975	3532854
2.	9813484	8723082	7419950	7065708
3.	1'4720226	1'3084623	1'1129925	1'0598562
4.	1'9626968	1'7446164	1'4839900	1'4131416
5.	2'4533710	2'1807705	1'8549875	1'7664270
6.	2'9440452	2'6169246	2'2259850	2'1197124
7.	3'4347194	3'0530787	2'5969825	2'4729978
8.	3'9253936	3'4892328	2'9679800	2'8262832
9.	4'4160678	3'9253869	3'3389775	3'1795686

NO. 9. RUSSIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	9'607676	9'458968	8'544750	2'100071
2.	19'215352	18'917936	17'089500	4'200142
3.	28'823028	28'376904	25'634250	6'300213
4.	38'430704	37'835872	34'179000	8'400284
5.	48'038380	47'294840	42'723750	10'500355
6.	57'646056	56'753808	51'268500	12'600426
7.	67'253732	66'212776	59'813250	14'700497
8.	76'861408	75'671744	68'358000	16'800568
9.	86'469084	85'130712	76'902750	18'900639

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	2'010215	1'943665	1'875177	1'061565
2.	4'020430	3'887330	3'750354	2'123130
3.	6'030645	5'830995	5'625531	3'184695
4.	8'040860	7'774660	7'500708	4'246260
5.	10'051075	9'718325	9'375885	5'307825
6.	12'061290	11'661990	11'251062	6'369390
7.	14'071505	13'605655	13'126239	7'430955
8.	16'081720	15'549320	15'001416	8'492520
9.	18'091935	17'492985	16'876593	9'554085

	Japanese yen.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	0'9688413	7812736	7094220	6305978
2.	1'9376826	1'5625472	1'4188440	1'2611956
3.	2'9065239	2'3438208	2'1282660	1'8917934
4.	3'8753652	3'1250944	2'8376880	2'5223912
5.	4'8442065	3'9063680	3'5471100	3'1529890
6.	5'8130478	4'6876416	4'2565320	3'7835868
7.	6'7818891	5'4689152	4'9659540	4'4141846
8.	7'7507304	6'2501888	5'6753760	5'0447824
9.	8'7195717	7'0314624	6'3847980	5'6753802

TABLE XXI

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	5208824	4630059	3938379	3750353
2.	1'0417648	9260118	7876758	7500706
3.	1'5626472	1'3890177	1'1815137	1'1251059
4.	2'0835296	1'8520236	1'5753516	1'5001412
5.	2'6044120	2'3150295	1'9691895	1'8751765
6.	3'1252944	2'7780354	2'3630274	2'2502118
7.	3'6461768	3'2410413	2'7568653	2'6252471
8.	4'1670592	3'7040472	3'1507032	3'0002824
9.	4'6879416	4'1670531	3'5445411	3'3753177

No. 10. JAPANESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	9'916666	9'763175	8'819555	2'167611
2.	19'833333	19'526350	17'639110	4'335222
3.	29'749998	29'289525	26'458665	6'502833
4.	39'666664	39'052700	35'278220	8'670444
5.	49'583330	48'815875	44'097775	10'838055
6.	59'499996	58'579050	52'917330	13'005666
7.	69'416662	68'342225	61'736885	15'173277
8.	79'333328	78'105400	70'556440	17'340888
9.	89'249994	87'868575	79'375995	19'508499

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	2'074865	2'006174	1'935484	1'095706
2.	4'149730	4'012348	3'870968	2'191412
3.	6'224595	6'018522	5'806452	3'287118
4.	8'299460	8'024696	7'741936	4'382824
5.	10'374325	10'030870	9'677420	5'478530
6.	12'449190	12'037044	11'612904	6'574236
7.	14'524055	14'043218	13'548388	7'669942
8.	16'598920	16'049392	15'483872	8'765648
9.	18'673785	18'055566	17'419356	9'861354

	Russian rouble.	Netherlands guilder.	Chilian condor.	British Indian rupee.
1.	1'032161	8064000	7322376	6508784
2.	2'064322	1'6128000	1'4644752	1'3017568
3.	3'096483	2'4192000	2'1967128	1'9526352
4.	4'128644	3'2256000	2'9289504	2'6035136
5.	5'160805	4'0320000	3'6611880	3'2543920
6.	6'192966	4'8384000	4'3934256	3'9052704
7.	7'225127	5'6448000	5'1256632	4'5561488
8.	8'257288	6'4512000	5'8579008	5'2070272
9.	9'289449	7'2576000	6'5901384	5'8579056

FIXED GOLD EQUIVALENTS

205

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	5376344	4778965	4065041	3870968
2.	1'0752688	9557930	8130082	7741936
3.	1'6129032	1'4336895	1'2195123	1'1612904
4.	2'1505376	1'9115860	1'6260164	1'5483872
5.	2'6881720	2'3894825	2'0325205	1'9354840
6.	3'2258064	2'8673790	2'4390246	2'3225808
7.	3'7634408	3'3452755	2'8455287	2'7096776
8.	4'3010752	3'8231720	3'2520328	3'0967744
9.	4'8387096	4'3010685	3'6585369	3'4838712

NO. 11. DUTCH EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	12'29745	12'10711	10'93695	2'688010
2.	24'59490	24'21422	21'87390	5'376020
3.	36'89235	36'32133	32'81085	8'064030
4.	49'18980	48'42844	43'74780	10'752040
5.	61'48725	60'53555	54'68475	13'440050
6.	73'78470	72'64266	65'62170	16'128060
7.	86'08215	84'74977	76'55865	18'816070
8.	98'37960	96'85688	87'49560	21'504080
9.	110'67705	108'96399	98'43255	24'192090

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	2'572998	2'487816	2'400154	1'358762
2.	5'145996	4'975632	4'800308	2'717524
3.	7'718994	7'463448	7'200462	4'076286
4.	10'291992	9'951264	9'600616	5'435048
5.	12'864990	12'439080	12'000770	6'793810
6.	15'437988	14'926896	14'400924	8'152572
7.	18'010986	17'414712	16'801078	9'511334
8.	20'583984	19'902528	19'201232	10'870096
9.	23'156982	22'390344	21'601386	12'228858

	Russian rouble.	Japanese yen.	Chilian condor.	British Indian rupee.
1.	1'279961	1'240079	9080328	8071409
2.	2'559922	2'480158	1'8160656	1'6142818
3.	3'839883	3'720237	2'7240984	2'4214227
4.	5'119844	4'960316	3'6321312	3'2285636
5.	6'399805	6'200395	4'5401640	4'0357045
6.	7'679766	7'440474	5'4481968	4'8428454
7.	8'959727	8'680553	6'3562296	5'6499863
8.	10'239688	9'920632	7'2642624	6'4571272
9.	11'519649	11'160711	8'1722952	7'2642681

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	6667094	5926296	5040973	4800307
2.	1'3334188	1'1852592	1'0081946	9600614
3.	2'0001282	1'7778888	1'5122919	1'4400921
4.	2'6663376	2'3705184	2'0163892	1'9201228
5.	3'3335470	2'9631480	2'5204865	2'4001535
6.	4'0002564	3'5557776	3'0245838	2'8801842
7.	4'6669658	4'1484072	3'5286811	3'3602149
8.	5'3336752	4'7410368	4'0327784	3'8402456
9.	6'0003846	5'3336664	4'5368757	4'3202763

NO. 12. CHILIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	13'54296	13'33334	12'04466	2'960256
2.	27'08592	26'66668	24'08932	5'920512
3.	40'62888	40'00002	36'13398	8'880768
4.	54'17184	53'33336	48'17864	11'841024
5.	67'71480	66'66670	60'22330	14'801280
6.	81'25776	80'00004	72'26796	17'761536
7.	94'80072	93'33338	84'31262	20'721792
8.	108'34368	106'66672	96'35728	23'682048
9.	121'88664	120'00006	108'40194	26'642304

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	2'833596	2'739786	2'643246	1'496380
2.	5'667192	5'479572	5'286492	2'992760
3.	8'500788	8'219358	7'929738	4'489140
4.	11'334384	10'959144	10'572984	5'985520
5.	14'167980	13'698930	13'216230	7'481900
6.	17'001576	16'438716	15'859476	8'978280
7.	19'835172	19'178502	18'502722	10'474660
8.	22'668768	21'918288	21'145968	11'971040
9.	25'502364	24'658074	23'789214	13'467420

	Russian rouble.	Japanese yen.	Netherlands guilder.	British Indian rupee.
1.	1'409598	1'3656769	1'101282	8888895
2.	2'819196	2'7313538	2'202564	1'7777790
3.	4'228794	4'0970307	3'303846	2'6666685
4.	5'638392	5'4627076	4'405128	3'5555580
5.	7'047990	6'8283845	5'506410	4'4444475
6.	8'457588	8'1940614	6'607692	5'3333370
7.	9'867186	9'5597383	7'708974	6'2222265
8.	11'276784	10'9254152	8'810256	7'1111160
9.	12'686382	12'2910921	9'911538	8'0000055

FIXED GOLD EQUIVALENTS

207

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	7342349	6526522	5551532	5286491
2.	1'4684698	1'3053044	1'1103064	1'0572982
3.	2'2027047	1'9579566	1'6654596	1'5859473
4.	2'9369396	2'6106088	2'2206128	2'1145964
5.	3'6711745	3'2632610	2'7757660	2'6432455
6.	4'4054094	3'9159132	3'3309192	3'1718946
7.	5'1396443	4'5685654	3'8860724	3'7005437
8.	5'8738792	5'2212176	4'4412256	4'2291928
9.	6'6081141	5'8738698	4'9963788	4'7578419

NO. 13. BRITISH INDIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	15'23582	15'	13'55024	3'330286
2.	30'47164	30'	27'10048	6'660572
3.	45'70746	45'	40'65072	9'990858
4.	60'94328	60'	54'20096	13'321144
5.	76'17910	75'	67'75120	16'651430
6.	91'41492	90'	81'30144	19'981716
7.	106'65074	105'	94'85168	23'312002
8.	121'88656	120'	108'40192	26'642288
9.	137'12238	135'	121'95261	29'972574

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	3'187793	3'082257	2'973649	1'683426
2.	6'375586	6'164514	5'947298	3'366852
3.	9'563379	9'246771	8'920947	5'050278
4.	12'751172	12'329028	11'894596	6'733704
5.	15'938965	15'411285	14'868245	8'417130
6.	19'126758	18'493542	17'841894	10'100556
7.	22'314551	21'575799	20'815543	11'783982
8.	25'502344	24'658056	23'789192	13'467408
9.	28'690137	27'740313	26'762841	15'150834

	Russian rouble.	Japanese yen.	Netherland guilder.	Chilian condor.
1.	1'585797	1'536385	1'238941	1'124999
2.	3'171594	3'072770	2'477882	2'249998
3.	4'757391	4'609155	3'716823	3'374997
4.	6'343188	6'145540	4'955764	4'499996
5.	7'928985	7'681925	6'194705	5'624995
6.	9'514782	9'218310	7'433646	6'749994
7.	11'100579	10'754695	8'672587	7'874993
8.	12'686376	12'291080	9'911528	8'999992
9.	14'272173	13'827465	11'150469	10'124991

	Scandinavian crown.	German mark.	Aus.-Hungarian crown.	French franc.
1.	'8260136	'7342332	'6245469	'5947298
2.	1'6520272	1'4684664	1'2490938	1'1894596
3.	2'4780408	2'2026996	1'8736407	1'7841894
4.	3'3040544	2'9369328	2'4981876	2'3789192
5.	4'1300680	3'6711660	3'1227345	2'9736490
6.	4'9560816	4'4053992	3'7472814	3'5683788
7.	5'7820952	5'1396324	4'3718283	4'1631086
8.	6'6081088	5'8738656	4'9963752	4'7578384
9.	7'4341224	6'6080988	5'6209221	5'2525682

NO. 14. SCANDINAVIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	18'445	18'15951	16'40437	4'031757
2.	36'890	36'31902	32'80874	8'063514
3.	55'335	54'47853	49'21311	12'095271
4.	73'780	72'63804	65'61748	16'127028
5.	92'225	90'79755	82'02185	20'158785
6.	110'670	108'95706	98'42622	24'190542
7.	129'115	127'11657	114'83059	28'222299
8.	147'560	145'27608	131'23496	32'254056
9.	166'005	163'43559	147'63933	36'285813

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis
1.	3'85925	3'731485	36'	2'038012
2.	7'71850	7'462970	72'	4'076024
3.	11'57775	11'194455	108'	6'114036
4.	15'43700	14'925940	144'	8'152048
5.	19'29625	18'657425	180'	10'190060
6.	23'15550	22'388910	216'	12'228072
7.	27'01475	26'120395	252'	14'266084
8.	30'87400	29'851880	288'	16'304096
9.	34'73325	33'583365	324'	18'342108

	Russian rouble.	Japanese yen.	Netherlands guilder.	Chilian condor.
1.	1'919819	1'86	1'499904	1'361962
2.	3'839638	3'72	2'999808	2'723924
3.	5'759457	5'58	4'499712	4'085886
4.	7'679276	7'44	5'999616	5'447848
5.	9'599095	9'30	7'499520	6'809810
6.	11'518914	11'16	8'999424	8'171772
7.	13'438733	13'02	10'499328	9'533734
8.	15'358552	14'88	11'999232	10'895696
9.	17'278371	16'74	13'499136	12'257658

FIXED GOLD EQUIVALENTS

209

	British Indian rupee.	German mark.	Aus.-Hungarian crown.	French franc.
1.	1'210634	8888875	7560976	72'
2.	2'421268	1'7777750	1'5121952	144'
3.	3'631902	2'6666625	2'2682928	216'
4.	4'842536	3'5555500	3'0243904	288'
5.	6'053170	4'4444375	3'7804880	360'
6.	7'263804	5'3333250	4'5365856	432'
7.	8'474438	6'2222125	5'2926832	504'
8.	9'685072	7'1111000	6'0487808	576'
9.	10'895706	7'9999875	6'8048784	648'

NO. 15. GERMAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	20'75066	20'42948	18'45495	4'535733
2.	41'50132	40'85896	36'90990	9'071466
3.	62'25198	61'28844	55'36485	13'607199
4.	83'00264	81'71792	73'81980	18'142932
5.	103'75330	102'14740	92'27475	22'678665
6.	124'50396	122'57688	110'72970	27'214398
7.	145'25462	143'00636	129'18465	31'750131
8.	166'00528	163'43584	147'63960	36'285864
9.	186'75614	183'86532	166'09455	40'821597

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	4'341662	4'197927	4'050006	2'292767
2.	8'683324	8'395854	8'100012	4'585534
3.	13'024986	12'593781	12'150018	6'878301
4.	17'366648	16'791708	16'200024	9'171068
5.	21'708310	20'989635	20'250030	11'463835
6.	26'049972	25'187562	24'300036	13'756602
7.	30'391634	29'385489	28'350042	16'049369
8.	34'733296	33'583416	32'400048	18'342136
9.	39'074958	37'781343	36'450054	20'634903

	Russian rouble.	Japanese yen.	Netherlands guilder.	Chilian condor.
1.	2'159800	2'092503	1'687395	1'532210
2.	4'319600	4'185006	3'374790	3'064420
3.	6'479400	6'277509	5'062185	4'596630
4.	8'639200	8'370012	6'749580	6'128840
5.	10'799000	10'462515	8'436975	7'661050
6.	12'958800	12'555018	10'124370	9'193260
7.	15'118600	14'647521	11'811765	10'725470
8.	17'278400	16'740024	13'499160	12'257680
9.	19'438200	18'832527	15'186555	13'789890

	British Indian rupee.	Scandinavian crown.	Aus.-Hungarian crown.	French franc.
1.	1'361965	1'125002	8'506111	8100012
2.	2'723930	2'250004	1'7012222	1'6200024
3.	4'085895	3'375006	2'5518333	2'4300036
4.	5'447860	4'500008	3'4024444	3'2400048
5.	6'809825	5'625010	4'2530555	4'0500060
6.	8'171790	6'750012	5'1036666	4'8600072
7.	9'533755	7'875014	5'9542777	5'6700084
8.	10'895720	9'000016	6'8048888	6'4800096
9.	12'257685	10'125018	7'6554999	7'2900108

No. 16. AUSTRIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	24'395	24'01741	21'69611	5'332323
2.	48'790	48'03482	43'39222	10'664646
3.	73'185	72'05223	65'08833	15'996969
4.	97'580	96'06964	86'78444	21'329292
5.	121'975	120'08705	108'48055	26'661615
6.	146'370	144'10446	130'17666	31'993938
7.	170'765	168'12187	151'87277	37'326261
8.	195'160	192'13928	173'56888	42'658584
9.	219'555	216'15669	195'26499	47'990907

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	5'104169	4'935189	4'761290	2'695436
2.	10'208338	9'870378	9'522580	5'390872
3.	15'312507	14'805567	14'283870	8'086308
4.	20'416676	19'740756	19'045160	10'781744
5.	25'520845	24'675945	23'806450	13'477180
6.	30'625014	29'611134	28'567740	16'172616
7.	35'729183	34'546323	33'329030	18'868052
8.	40'833352	39'481512	38'090320	21'563488
9.	45'937521	44'416701	42'851610	24'258924

	Russian rouble.	Japanese yen.	Netherlands guilder.	Chilian condor.
1.	2'539116	2'46	1'983744	1'801305
2.	5'078232	4'92	3'967488	3'602610
3.	7'617348	7'38	5'951232	5'403915
4.	10'156464	9'84	7'934976	7'205220
5.	12'695580	12'30	9'918720	9'006525
6.	15'234696	14'76	11'902464	10'807830
7.	17'773812	17'22	13'886208	12'609135
8.	20'312928	19'68	15'869952	14'410440
9.	22'852044	22'14	17'853696	16'211745

FIXED GOLD EQUIVALENTS

211

	British Indian rupee.	Scandinavian crown.	German mark.	French franc.
1.	1'601161	1'322581	1'175625	'9522581
2.	3'202322	2'645162	2'351250	1'9045162
3.	4'803483	3'967743	3'526875	2'8567743
4.	6'404644	5'290324	4'702500	3'8090324
5.	8'005805	6'612905	5'878125	4'7612905
6.	9'606966	7'935486	7'053750	5'7135486
7.	11'208127	9'258067	8'229375	6'6658067
8.	12'809288	10'580648	9'405000	7'6180648
9.	14'410449	11'903229	10'580625	8'5703229

NO. 17. FRENCH EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	25'61806	25'22154	22'78385	5'599662
2.	51'23612	50'44308	45'56770	11'199324
3.	76'85418	75'66462	68'35155	16'798986
4.	102'47224	100'88616	91'13540	22'398648
5.	128'09030	126'10770	113'91925	27'998310
6.	153'70836	151'32924	136'70310	33'597972
7.	179'32642	176'55078	159'48695	39'197634
8.	204'94448	201'77232	182'27080	44'797296
9.	230'56254	226'99386	205'05465	50'396958

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	5'360069	5'182618	5'	2'830573
2.	10'720138	10'365236	10'	5'661146
3.	16'080207	15'547854	15'	8'491719
4.	21'440276	20'730472	20'	11'322292
5.	26'800345	25'913090	25'	14'152865
6.	32'160414	31'095708	30'	16'983438
7.	37'520483	36'278326	35'	19'814011
8.	42'880552	41'460944	40'	22'644584
9.	48'240621	46'643562	45'	25'475157

	Russian rouble.	Japanese yen.	Netherlands guilder.	Chilian condor.
1.	2'666415	2'583333	2'0832	1'891614
2.	5'332830	5'166666	4'1664	3'783228
3.	7'999245	7'749999	6'2496	5'674842
4.	10'665660	10'333332	8'3328	7'566456
5.	13'332075	12'916665	10'4160	9'458070
6.	15'998490	15'499998	12'4992	11'349684
7.	18'664905	18'083331	14'5824	13'241298
8.	21'331320	20'666664	16'6656	15'132912
9.	23'997735	23'249997	18'7488	17'024526

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	1'684136	1'388889	1'234566	1'050136
2.	3'362872	2'777778	2'469132	2'100272
3.	5'044308	4'166667	3'703698	3'150408
4.	6'725744	5'555556	4'938264	4'200544
5.	8'407180	6'944445	6'172830	5'250680
6.	10'088616	8'333334	7'407396	6'300816
7.	11'770052	9'722223	8'641962	7'350952
8.	13'451488	11'111112	9'876528	8'401088
9.	15'132924	12'500001	11'111094	9'451224





EXAMPLE OF USE OF TABLE XXIII.

It is desired to know the equivalent in German marks for 856,748·67 pesos at 37·726 ratio.

Under German and against Mexico will be found the following figures :—

800,000	pesos	=	marks	54552216
50,000	"	=	"	34095135
6,000	"	=	"	40914162
700	"	=	"	47733189
40	"	=	"	27276108
8	"	=	"	54552216
·6	"	=	"	4091416
·07	"	=	"	477331
				<hr/>
				58,421,923·12943 ÷ 37·726
				= 1,548,585·14 marks : Ans.

Check this by the weight system. The mark is 3·584224 decigrams of pure gold. The Mexican peso is 244·4091849 decigrams of pure silver.

The sum is :—

$$\frac{856,748·67 \div 37·726 \times 244·4091849}{3·584224} = 1,548,585·07 \text{ marks : Ans.}$$

TABLE XXIII.

TABLE XXIII.

ONE PART OF GOLD TO ONE PART OF SILVER.

NO. 1. EGYPTIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rix-dollar.
1.	4'499165	3'286174	3'261945	3'176471
2.	8'998330	6'572348	6'523890	6'352942
3.	13'497495	9'858522	9'785835	9'529413
4.	17'996660	13'144696	13'047780	12'705884
5.	22'495825	16'430870	16'309725	15'882355
6.	26'994990	19'717044	19'571670	19'058826
7.	31'494155	23'003218	22'833615	22'235297
8.	35'993320	26'289392	26'095560	25'411768
9.	40'492485	29'575566	29'357505	28'588239

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	3'141378	3'025210	2'722689	2'419643
2.	6'282756	6'050420	5'445378	4'839286
3.	9'424134	9'075630	8'168067	7'258929
4.	12'565512	12'100840	10'890756	9'678572
5.	15'706890	15'126050	13'613445	12'098215
6.	18'848268	18'151260	16'336134	14'517858
7.	21'989646	21'176470	19'058823	16'937501
8.	25'131024	24'201680	21'781512	19'357144
9.	28'272402	27'226890	24'504201	21'776787

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	1'971705	1'493931	1'437556	0'5570398
2.	3'943410	2'987862	2'875112	1'1140796
3.	5'915115	4'481793	4'312668	1'6711194
4.	7'886820	5'975724	5'750224	2'2281592
5.	9'858525	7'469655	7'187780	2'7851990
6.	11'830230	8'963586	8'625336	3'3422388
7.	13'801935	10'457517	10'062892	3'8992786
8.	15'773640	11'951448	11'500448	4'4563184
9.	17'745345	13'445379	12'938004	5'0133582

NO. 2. BRITISH EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rix-dollar.
1.	4'569898	3'337837	3'313227	3'226409
2.	9'139796	6'675674	6'626454	6'452818
3.	13'709694	10'013511	9'939681	9'679227
4.	18'279592	13'351348	13'252908	12'905636
5.	22'839490	16'689185	16'566135	16'132045
6.	27'419388	20'027022	19'879302	19'358454
7.	31'989286	23'364859	23'192589	22'584863
8.	36'559184	26'702696	26'505816	25'811272
9.	41'129082	30'040533	29'819043	29'037681

GOLD EQUIVALENTS TO SILVER

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	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	3'190765	3'072771	2'765494	2'457683
2.	6'381530	6'145542	5'530988	4'915366
3.	9'572295	9'218313	8'296482	7'373049
4.	12'763060	12'291084	11'061976	9'830732
5.	15'953825	15'363855	13'827470	12'288415
6.	19'144590	18'436626	16'592964	14'746098
7.	22'335355	21'509397	19'358458	17'203781
8.	25'526120	24'582168	22'123952	19'661464
9.	28'716885	27'654939	24'889446	22'119147

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	2'002703	1'517418	1'460156	0'5657973
2.	4'005406	3'034836	2'920312	1'1315946
3.	6'008109	4'552254	4'380468	1'6973919
4.	8'010812	6'069672	5'840624	2'2631892
5.	10'013515	7'587090	7'300780	2'8289865
6.	12'016218	9'104508	8'760936	3'3947838
7.	14'018921	10'621926	10'221092	3'9605811
8.	16'021624	12'139344	11'681248	4'5263784
9.	18'024327	13'656762	13'141404	5'0921757

NO. 3. TURKISH EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rix-dollar.
1.	5'058840	3'694958	3'667715	3'571609
2.	10'117680	7'389916	7'335430	7'143218
3.	15'176520	11'084874	11'003145	10'714827
4.	20'235360	14'779832	14'670860	14'286436
5.	25'294200	18'474790	18'338575	17'858045
6.	30'353040	22'169748	22'006290	21'429654
7.	35'411880	25'864706	25'674005	25'001263
8.	40'470720	29'559664	29'341720	28'572872
9.	45'529560	33'254622	33'009435	32'144481

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	3'532151	3'401532	3'061379	2'720635
2.	7'064302	6'803064	6'122758	5'441270
3.	10'596453	10'204596	9'184137	8'161905
4.	14'128604	13'606128	12'245516	10'882540
5.	17'660755	17'007660	15'306895	13'603175
6.	21'192906	20'409192	18'368274	16'323810
7.	24'725057	23'810724	21'429653	19'044445
8.	28'257208	27'212256	24'491032	21'765080
9.	31'789359	30'613788	27'552411	24'485715

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	2'216975	1'679769	1'616381	0'6263329
2.	4'433950	3'359538	3'232762	1'2526658
3.	6'650925	5'039307	4'849143	1'8789987
4.	8'867900	6'719076	6'465524	2'5053316
5.	11'084875	8'398845	8'081905	3'1316645
6.	13'301850	10'078614	9'698286	3'7579974
7.	15'518825	11'758383	11'314667	4'3843303
8.	17'735800	13'438152	12'931048	5'0106632
9.	19'952775	15'117921	14'547429	5'6369961

NO. 4. PORTUGUESE EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	20'58336	15'03401	14'92317	14'53213
2.	41'16672	30'06802	29'84634	29'06426
3.	61'75008	45'10203	44'76951	43'59639
4.	82'33344	60'13604	59'69268	58'12852
5.	102'91680	75'17005	74'61585	72'66065
6.	123'50016	90'20406	89'53902	87'19278
7.	144'08352	105'23807	104'46219	101'72491
8.	164'66688	120'27208	119'38536	116'25704
9.	185'25024	135'30609	134'30853	130'78917

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	14'37158	13'84012	12'45611	11'06969
2.	28'74316	27'68024	24'91222	22'13938
3.	43'11474	41'52036	37'36833	33'20907
4.	57'48632	55'36048	49'82444	44'27876
5.	71'85790	69'20060	62'28055	55'34845
6.	86'22948	83'04072	74'73666	66'41814
7.	100'60106	96'88084	87'19277	77'48783
8.	114'97264	110'72096	99'64888	88'55752
9.	129'34422	124'56108	112'10499	99'62721

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	9'020409	6'834628	6'576716	2'548418
2.	18'040818	13'669256	13'153432	5'096836
3.	27'061227	20'503884	19'730148	7'645254
4.	36'081636	27'338512	26'306864	10'193672
5.	45'102045	34'173140	32'883580	12'742090
6.	54'122454	41'007768	39'460296	15'290508
7.	63'142863	47'842396	46'037012	17'838926
8.	72'163272	54'677024	52'613728	20'387344
9.	81'183681	61'511652	59'190444	22'935762

No. 5. URUGUAYAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	21'50343	15'70603	15'59023	15'18171
2.	43'00686	31'41206	31'18046	30'36342
3.	64'51029	47'11809	46'77069	45'54513
4.	86'01372	62'82412	62'36092	60'72684
5.	127'51715	78'53015	77'95115	75'90855
6.	129'02058	94'23618	93'54138	91'09026
7.	150'52401	109'94221	109'13161	106'27197
8.	172'02744	125'64824	124'72184	121'45368
9.	193'53087	141'35427	140'31207	135'63539

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	15'01399	14'45877	13'01289	11'56451
2.	30'02798	28'91754	26'02578	23'12902
3.	45'04197	43'37631	39'03867	34'69353
4.	60'05596	57'83508	52'05156	46'25804
5.	75'06995	72'29385	65'06445	57'82255
6.	90'08394	86'75262	78'07734	69'38706
7.	105'09793	101'21139	91'09023	80'95157
8.	120'11192	115'67016	104'10312	92'51608
9.	135'12591	130'12893	117'11601	104'08059

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	9'423618	7'140133	6'870693	2'662331
2.	18'847236	14'280266	13'741386	5'324662
3.	28'270854	21'420399	20'612079	7'986993
4.	37'694472	28'560532	27'482772	10'649324
5.	47'118090	35'700665	34'353465	13'311655
6.	56'541708	42'840798	41'224158	15'973986
7.	65'965326	49'980931	48'094851	18'636317
8.	75'388944	57'121064	54'965544	21'298648
9.	84'812562	64'261197	61'836237	23'960979

No. 6. U.S.A. EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	22'23970	16'24380	16'12403	15'70153
2.	44'47940	32'48760	32'24806	31'40306
3.	66'71910	48'73140	48'37209	47'10459
4.	88'95880	64'97520	64'49612	62'80612
5.	111'19850	81'21900	80'62015	78'50765
6.	133'43820	97'46280	96'74418	94'20918
7.	155'67790	113'70660	112'86821	109'91071
8.	177'91760	129'95040	128'99224	125'61224
9.	200'15730	146'19420	145'11627	141'31377

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	15'52806	14'95383	13'45845	11'96047
2.	31'05612	29'90766	26'91690	23'92094
3.	46'58418	44'86149	40'37535	35'88141
4.	62'11224	59'81532	53'83380	47'84188
5.	77'64030	74'76915	67'29225	59'80235
6.	93'16836	89'72298	80'75070	71'76282
7.	108'69642	104'67681	94'20915	83'72329
8.	124'22448	119'63064	107'66760	95'68376
9.	139'75254	134'58447	121'12605	107'64423

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	9'746279	7'384609	7'105943	2'753488
2.	19'492558	14'769218	14'211886	5'506976
3.	29'238837	22'153827	21'317829	8'260464
4.	38'985116	29'538436	28'423772	11'013952
5.	48'731395	36'923045	35'529715	13'767440
6.	58'477674	44'307654	42'635658	16'520928
7.	68'223953	51'692263	49'741601	19'274416
8.	77'970232	59'076872	56'847544	22'027904
9.	87'716511	66'461481	63'953487	24'781392

NO. 7. ARGENTINE EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rixdollar.
1.	23'05197	16'83708	16'71294	16'27500
2.	46'10394	33'67416	33'42588	32'55000
3.	69'15591	50'51124	50'13882	48'82500
4.	92'20788	67'34832	66'85176	65'10000
5.	115'25985	84'18540	83'56470	81'37500
6.	138'31182	101'02248	100'27764	97'65000
7.	161'36379	117'85956	116'99058	113'92500
8.	184'41576	134'69664	133'70352	130'20000
9.	207'46773	151'53372	150'41646	146'47500

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	16'09520	15'50000	13'95000	12'39731
2.	32'19040	31'00000	27'90000	24'79462
3.	48'28560	46'50000	41'85000	37'19193
4.	64'38080	62'00000	55'80000	49'58924
5.	80'47600	77'50000	69'75000	61'98655
6.	96'57120	93'00000	83'70000	74'38386
7.	112'66640	108'50000	97'65000	86'78117
8.	128'76160	124'00000	111'60000	99'17848
9.	145'85680	139'50000	125'55000	111'57579

GOLD EQUIVALENTS TO SILVER

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	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	10'10225	7'654321	7'365477	2'854055
2.	20'20450	15'308642	14'730954	5'708110
3.	30'30675	22'962963	22'096431	8'562165
4.	40'40900	30'617284	29'461908	11'416220
5.	50'51125	38'271605	36'827385	14'270275
6.	60'61350	45'925926	44'192862	17'124330
7.	70'71575	53'580247	51'558339	19'978385
8.	80'81800	61'234568	58'923816	22'832440
9.	90'92025	68'888889	66'289293	25'686495

NO. 8. BRAZILIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Japanese rix-dollar.
1.	40'71963	29'74147	29'52218	28'74860
2.	81'43926	59'48294	59'04436	57'49720
3.	122'15889	89'22441	88'56654	86'24580
4.	162'87852	118'96588	118'08872	114'99400
5.	203'59815	148'70735	147'61090	143'74300
6.	244'31778	178'44882	177'13308	172'49160
7.	285'03741	208'19029	206'65526	201'24020
8.	325'75704	237'93176	236'17744	229'98880
9.	366'47667	267'67323	265'69962	258'73740

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	28'43100	27'37962	24'64166	21'89894
2.	56'86200	54'75924	49'28332	43'79788
3.	85'29300	82'13886	73'92498	65'69682
4.	113'72400	109'51848	98'56664	87'59576
5.	142'15500	136'89810	123'20830	109'49470
6.	170'58600	164'27772	147'84996	131'39364
7.	199'01700	191'65734	172'49162	153'29258
8.	227'44800	219'03696	197'13328	175'19152
9.	255'87900	246'41658	221'77494	197'09046

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	17'84488	13'52080	13'01058	5'041480
2.	35'68976	27'04160	26'02116	10'082960
3.	53'53464	40'56240	39'03174	15'124440
4.	71'37952	54'08320	52'04232	20'165920
5.	89'22440	67'60400	65'05290	25'207400
6.	107'06928	81'12480	78'06348	30'248880
7.	124'91416	94'64560	91'07406	35'290360
8.	142'75904	108'16640	104'08464	40'331840
9.	160'60392	121'68720	117'09522	45'373320

TABLE XXIII

No. 9. RUSSIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Japanese rixdollar.
1.	43'22652	31'57249	31'3397	30'51850
2.	86'45304	63'14498	62'6794	61'03700
3.	129'67956	94'71747	94'0191	91'55550
4.	172'90608	126'28996	125'3588	122'07400
5.	216'13260	157'86245	156'6985	152'59250
6.	259'35912	189'43494	188'0382	183'11100
7.	302'58564	221'00743	219'3779	213'62950
8.	345'81216	252'57992	250'7176	244'14800
9.	389'03868	284'15241	282'0573	274'66650

	Philippine dollar.	Columbian sol.	Polivian boliviano.	Russian rouble.
1.	30'18134	29'06524	26'15871	23'24715
2.	60'36268	58'13048	52'31742	46'49430
3.	90'54402	87'19572	78'47613	69'74145
4.	120'72536	116'26096	104'63484	92'98860
5.	150'90670	145'32620	130'79355	116'23575
6.	181'08804	174'39144	156'95226	139'48290
7.	211'26938	203'45668	183'11097	162'73005
8.	241'45072	232'52192	209'26968	185'97720
9.	271'63206	261'58716	235'42839	209'22435

	Siamese tical	Aus.-Hungarian crown.	Brit. Indian rupee	Persian kran
1.	18'94350	14'35320	13'81157	5'351858
2.	37'88700	28'70640	27'62314	10'703716
3.	56'83050	43'05960	41'43471	16'055574
4.	75'77400	57'41280	55'24628	21'407432
5.	94'71750	71'76600	69'05785	26'759290
6.	113'66100	86'11920	82'86942	32'111148
7.	132'60450	100'47240	96'68099	37'463006
8.	151'54800	114'82560	110'49256	42'814864
9.	170'49150	129'17880	124'30413	48'166722

No. 10. JAPANESE EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen	Japanese rixdollar.
1.	44'61672	32'58789	32'34762	31'50000
2.	89'23344	65'17578	64'69524	63'00000
3.	133'85016	97'76367	97'04286	94'50000
4.	178'46688	130'35156	129'39048	126'00000
5.	213'08360	162'93945	161'73810	157'50000
6.	267'70032	195'52734	194'08572	189'00000
7.	312'31704	228'11523	226'43334	220'50000
8.	356'93376	260'70312	258'78096	252'00000
9.	401'55048	293'29101	291'12858	283'50000

GOLD EQUIVALENTS TO SILVER

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	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	31'15200	30'00000	27'00000	23'99479
2.	62'30400	60'00000	54'00000	47'98958
3.	93'45600	90'00000	81'00000	71'98437
4.	124'60800	120'00000	108'00000	95'97916
5.	155'76000	150'00000	135'00000	119'97395
6.	186'91200	180'00000	162'00000	143'96874
7.	218'06400	210'00000	189'00000	167'96353
8.	249'21600	240'00000	216'00000	191'95832
9.	280'36800	270'00000	243'00000	215'95311

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	19'55274	14'81481	14'25576	5'523978
2.	39'10548	29'62962	28'51152	11'047956
3.	58'65822	44'44443	42'76728	16'571934
4.	78'21096	59'25924	57'02304	22'095912
5.	97'76370	74'07405	71'27880	27'619890
6.	117'31644	88'88886	85'53456	33'143868
7.	136'86918	103'70367	99'79032	38'667846
8.	156'42192	118'51848	114'04608	44'191824
9.	175'97466	133'33329	128'30184	49'715802

No. 11. NETHERLANDS EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Japanese rix-dollar.
1.	55'32827	40'41157	40'11362	39'06250
2.	110'65654	80'82314	80'22724	78'12500
3.	165'98481	121'23471	120'34086	117'18750
4.	221'31308	161'64628	160'45448	156'25000
5.	276'64135	202'05785	200'56810	195'31250
6.	331'96962	242'46942	240'68172	234'37500
7.	387'29789	282'88099	280'79534	273'43750
8.	442'62616	323'29256	320'90896	312'50000
9.	497'95443	363'70413	361'02258	351'56250

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	38'63095	37'20238	33'48214	29'75545
2.	77'26190	74'40476	66'96428	59'51090
3.	115'89285	111'60714	100'44642	89'26635
4.	154'52380	148'80952	133'92856	119'02180
5.	193'15475	186'01190	167'41070	148'77725
6.	231'78570	223'21428	200'89284	178'53270
7.	270'41665	260'41666	234'37498	208'28815
8.	309'04760	297'61904	267'85712	238'04360
9.	347'67855	334'82142	301'33926	267'79905

TABLE XXIII

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	24'24695	18'37155	17'67828	6'850171
2.	48'49390	36'74310	35'35656	13'700342
3.	72'74085	55'11465	53'03484	20'550513
4.	96'98780	73'48620	70'71312	27'400684
5.	121'23475	91'85775	88'39140	34'250855
6.	145'48170	110'22930	106'06968	41'101026
7.	169'72865	128'60085	123'74796	47'951197
8.	193'97560	146'97240	141'42624	54'801368
9.	218'22255	165'34395	159'10452	61'651539

NO. 12. CHILIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rix-dollar.
1.	60'93202	44'50453	44'17640	43'01882
2.	121'86404	89'00906	88'35280	86'03764
3.	182'79606	133'51359	132'52920	129'05646
4.	243'72808	178'01812	176'70560	172'07528
5.	304'66010	222'52265	220'88200	215'09410
6.	365'59212	267'02718	265'05840	258'11292
7.	426'52414	311'53171	309'23480	301'13174
8.	487'45616	356'03624	353'41120	344'15056
9.	548'38818	400'54077	397'58760	387'16938

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	42'54357	40'97031	36'87328	32'76913
2.	85'08714	81'94062	73'74656	65'53826
3.	127'63071	122'91093	110'61984	98'30739
4.	170'17428	163'88124	147'49312	131'07652
5.	212'71785	204'85155	184'36640	163'84565
6.	255'26142	245'82186	221'23968	196'61478
7.	297'80499	286'79217	258'11296	229'38391
8.	340'34856	327'76248	294'98624	262'15304
9.	382'89213	368'73279	331'85952	294'92217

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	26'70272	20'23225	19'46877	7'543969
2.	53'40544	40'46450	38'93754	15'087938
3.	80'10816	60'69675	58'40631	22'631907
4.	106'81088	80'92900	77'87508	30'175876
5.	133'51360	101'16125	97'34385	37'719845
6.	160'21632	121'39350	116'81262	45'263814
7.	186'91904	141'62575	136'28139	52'807783
8.	213'62176	161'85800	155'75016	60'351752
9.	240'32448	182'09025	175'21893	67'895721

No. 13. BRITISH INDIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Japanese rix-dollar.
1.	68'54848	50'06756	49'69841	48'39614
2.	137'09696	100'13512	99'39682	96'79228
3.	205'64544	150'20268	149'09523	145'18842
4.	274'19392	200'27024	198'79364	193'58456
5.	342'74240	250'33780	248'49205	241'98070
6.	411'29088	300'40536	298'19046	290'37684
7.	479'83936	350'47292	347'88887	338'77298
8.	548'38784	400'54048	397'58728	387'16912
9.	616'93632	450'60804	447'28569	435'56526

	Philippine dollar.	Columbian sol.	Bolivian boliviano	Russian rouble.
1.	47'86148	46'09156	41'48240	36'86525
2.	95'72296	92'18312	82'96480	73'73050
3.	143'58444	138'27468	124'44720	110'59575
4.	191'44592	184'36624	165'92960	147'46100
5.	239'30740	230'45780	207'41200	184'32625
6.	287'16888	276'54936	248'89440	221'19150
7.	335'03036	322'64092	290'37680	258'05675
8.	382'89184	368'73248	331'85920	294'92200
9.	430'75332	414'82404	373'34160	331'78725

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	30'04054	22'76126	21'90234	8'486959
2.	60'08108	45'52252	43'80468	16'973918
3.	90'12162	68'28378	65'70702	25'460877
4.	120'16216	91'04504	87'60936	33'947836
5.	150'20270	113'80630	109'51170	42'434795
6.	180'24324	136'56756	131'41404	50'921754
7.	210'28378	159'32882	153'31638	59'408713
8.	240'32432	182'09008	175'21872	67'895672
9.	270'36486	204'85134	197'12106	76'382631

No. 14. SCANDINAVIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Japanese rix-dollar.
1.	82'98710	60'61348	60'16657	58'59000
2.	165'97420	121'22696	120'33314	117'18000
3.	248'96130	181'84044	180'49971	175'77000
4.	331'94840	242'45392	240'66628	234'36000
5.	414'93550	303'06740	300'83285	292'95000
6.	497'92260	363'68088	360'99942	351'54000
7.	580'90970	424'29436	421'16599	410'13000
8.	663'89680	484'90784	481'33256	468'72000
9.	746'88390	545'52132	541'49913	527'31000

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble
1.	57'94272	55'80000	50'22000	44'63031
2.	115'88544	111'60000	100'44000	89'26062
3.	173'82816	167'40000	150'66000	133'89093
4.	231'77088	223'20000	200'88000	178'52124
5.	289'71360	279'00000	251'10000	223'15155
6.	347'65632	334'80000	301'32000	267'78186
7.	405'59904	390'60000	351'54000	312'41217
8.	463'54176	446'40000	401'76000	357'04248
9.	521'48448	502'20000	451'98000	401'67279

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	36'36809	27'55556	26'51572	10'27460
2.	72'73618	55'11112	53'03144	20'54920
3.	109'10427	82'66668	79'54716	30'82380
4.	145'47236	110'22224	106'06288	41'09840
5.	181'84045	137'77780	132'57860	51'37300
6.	218'20854	165'33336	159'09432	61'64760
7.	254'57663	192'88892	185'61004	71'92220
8.	290'94472	220'44448	212'12576	82'19680
9.	327'31281	248'00004	238'64148	92'47140

No. 15. GERMAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Javanese rix-dollar.
1.	93'36063	68'19027	67'68750	65'91385
2.	186'72126	136'38054	135'37500	131'82770
3.	280'08189	204'57081	203'06250	197'74155
4.	373'44252	272'76108	270'75000	263'65540
5.	466'80315	340'95135	338'43750	329'56925
6.	560'16378	409'14162	406'12500	395'48310
7.	653'52441	477'33189	473'81250	461'39695
8.	746'88504	545'52216	541'50000	527'31080
9.	840'24567	613'71243	609'18750	593'22465

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	65'18566	62'77510	56'47959	50'20918
2.	130'37132	125'55020	112'99518	100'41836
3.	195'55698	188'32530	169'49277	150'62754
4.	260'74264	251'10040	225'99036	200'83672
5.	325'92830	313'87550	282'48795	251'04590
6.	391'11396	376'65060	338'98554	301'25508
7.	456'29962	439'42570	395'48313	351'46426
8.	521'48528	502'20080	451'98072	401'67344
9.	586'67094	564'97590	508'47831	451'88262

GOLD EQUIVALENTS TO SILVER

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	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	40'91417	31'00005	29'83023	11'55894
2.	81'82834	62'00010	59'66046	23'11788
3.	122'74251	93'00015	89'49069	34'67682
4.	163'65668	124'00020	119'32092	46'23576
5.	204'57085	155'00025	149'15115	57'79470
6.	245'48502	186'00030	178'98138	69'35364
7.	286'39919	217'00035	208'81161	80'91258
8.	327'31336	248'00040	238'64184	92'47152
9.	368'22753	279'00045	268'47207	104'03046

NO. 16. AUSTRO-HUNGARIAN EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Japanese rix-dollar.
1.	109'7571	80'16621	79'57514	77'49000
2.	219'5142	160'33242	159'15028	154'98000
3.	329'2713	240'49863	238'72542	232'47000
4.	439'0284	320'66484	318'30056	309'96000
5.	548'7855	400'83105	397'87570	387'45000
6.	658'5426	480'99726	477'45084	464'94000
7.	768'2997	561'16347	557'02598	542'43000
8.	878'0568	641'32968	636'60112	619'92000
9.	987'8139	721'49589	716'17626	697'41000

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	76'63392	73'80000	66'42000	59'02719
2.	153'26784	147'60000	132'84000	118'05438
3.	229'90176	221'40000	199'26000	177'08157
4.	306'53568	295'20000	265'68000	236'10876
5.	383'16960	369'00000	332'10000	295'13595
6.	459'80352	442'80000	398'52000	354'16314
7.	536'43744	516'60000	464'94000	413'19033
8.	613'07136	590'40000	531'36000	472'21752
9.	689'70528	664'20000	597'78000	531'24471

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	48'09973	36'44444	35'06918	13'58899
2.	96'19946	72'88888	70'13836	27'17798
3.	144'29919	109'33332	105'20754	40'76697
4.	192'39892	145'77776	140'27672	54'35596
5.	240'49865	182'22220	175'34590	67'94495
6.	288'59838	218'66664	210'41508	81'53394
7.	336'69811	255'11108	245'48426	95'12293
8.	384'79784	291'55552	280'55344	108'71192
9.	432'89757	327'99996	315'62262	122'30091

TABLE XXIII

No. 17. FRENCH EQUIVALENTS TO

	Chinese tael.	Mexican peso.	Japanese yen.	Japanese rix-dollar.
1.	115'2599	84'18538	83'56469	81'37500
2.	230'5198	168'37076	167'12938	162'75000
3.	345'7797	252'55614	250'69407	244'12500
4.	461'0396	336'74152	334'25876	325'50000
5.	576'2995	420'92690	417'82345	406'87500
6.	691'5594	505'11228	501'38814	488'25000
7.	806'8193	589'29766	584'95283	569'62500
8.	922'0792	673'48304	668'51752	651'00000
9.	1037'3391	757'66842	752'08221	732'37500

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	80'47600	77'50000	69'75000	61'98655
2.	160'95200	155'00000	139'50000	123'97310
3.	241'42800	232'50000	209'25000	185'95965
4.	321'90400	310'00000	279'00000	247'94620
5.	402'38000	387'50000	348'75000	309'93275
6.	482'85600	465'00000	418'50000	371'91930
7.	563'33200	542'50000	488'25000	433'90585
8.	643'80800	620'00000	558'00000	495'89240
9.	724'28400	697'50000	627'75000	557'87895

	Siamese tical.	Aus.-Hungarian crown.	Brit. Indian rupee.	Persian kran.
1.	50'51124	38'27160	36'82739	14'27028
2.	101'02248	76'54320	73'65478	28'54056
3.	151'53372	114'81480	110'48217	42'81084
4.	202'04496	153'08640	147'30956	57'08112
5.	252'55620	191'35800	184'13695	71'35140
6.	303'06744	229'62960	220'96434	85'62168
7.	353'57868	267'90120	257'79173	99'89196
8.	404'08992	306'17280	294'61912	114'16224
9.	454'60116	344'44440	331'44651	128'43252

USE OF TABLE XXV.

Find the equivalent to Bolivian bolivianos 78,546.46 in Mexican pesos. See Table of Mexican Equivalents, and under Bolivia find the following figures :—

Bolivianos 70,000	=	57,997.00	pesos.
" 8,000	=	6,628.23	"
" 500	=	414.26	"
" 40	=	33.14	"
" 6	=	4.97	"
" .4	=	33	"
" .06	=	5	"
<hr/>			
65,077.98			
<hr/>			

Check this by weight. The boliviano is 202.5 decigrams.
The peso is 244.409184 decigrams.

The sum is :—

$$\frac{78,546.46 \times 202.5}{244.409184} = 65,077.98 \text{ pesos : Ans.}$$

TABLE XXV.

Multiples of the monetary signs for the mint issue weight of pure silver in each of 12 chief moneys of account for the mint issue weight of pure silver in 11 other chief silver moneys of account.

No. I. SHANGHAE EQUIVALENTS TO

	Mexican peso.	Japanese yen.	Javanese rix-dollar.	Philippine dollar.
1.	7303964	7250112	7060134	6982136
2.	14607928	14500224	14120268	13964272
3.	21911892	21750336	21180402	20946408
4.	29215856	29000448	28240536	27928544
5.	36519820	36250560	35300670	34910680
6.	43823784	43500672	42360804	41892816
7.	51127748	50750784	49420938	48874952
8.	58431712	58000896	56481072	55857088
9.	65735676	65251008	63541206	62839224

	Columbian sol.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	6723937	6051543	5377982	4382379
2.	13447874	12103086	10755964	8764758
3.	20171811	18154629	16133946	13147137
4.	26895748	24206172	21511928	17529516
5.	33619685	30257715	26889910	21911895
6.	40343622	36309258	32267892	26294274
7.	47067559	42360801	37645874	30676653
8.	53791496	48412344	43023856	35059032
9.	60515433	54463887	48401838	39441411

	Austrian florin.	British Indian rupee.	Persian kran.
1.	3320463	3195162	1238096
2.	6640926	6390324	2476192
3.	9961389	9585486	3714288
4.	13281852	12780648	4952384
5.	16602315	15975810	6190480
6.	19922778	19170972	7428576
7.	23243241	22366134	8666672
8.	26563704	25561296	9904768
9.	29884167	28756458	11142864

NO. 2. MEXICAN EQUIVALENTS TO

	Shanghai tael.	Japanese yen.	Javanese rix-dollar.	Philippine dollar.
1.	1'36912	'0992627	'9666167	'9559379
2.	2'73824	'1985254	1'9332334	1'9118758
3.	4'10736	'2977881	2'8998501	2'8678137
4.	5'47648	'3970508	3'8664668	3'8237516
5.	6'84560	'4963135	4'8330835	4'7796895
6.	8'21472	'5955762	5'7997002	5'7356274
7.	9'58384	'6948389	6'7663169	6'6915653
8.	10'95296	'7941016	7'7329336	7'6475032
9.	12'32208	'8933643	8'6995503	8'6034411

	Columbian sol.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	'9205874	'8285286	'7363101	'6000001
2.	1'8411748	1'6570572	1'4726202	1'2000002
3.	2'7617622	2'4855858	2'2089303	1'8000003
4.	3'6823496	3'3141144	2'9452404	2'4000004
5.	4'6029370	4'1426430	3'6815505	3'0000005
6.	5'5235244	4'9711716	4'4178606	3'6000006
7.	6'4441118	5'7997002	5'1541707	4'2000007
8.	7'3646992	6'6282288	5'8904808	4'8000008
9.	8'2852866	7'4567574	6'6267909	5'4000009

	Austrian florin.	British Indian rupee.	Persian kran.
1.	'4546111	'4374558	'1695101
2.	'909222	'8749116	'3390202
3.	1'363833	1'3123674	'5085303
4.	1'818444	1'7498232	'6780404
5.	2'273055	2'1872790	'8475505
6.	2'727666	2'6247348	1'0170606
7.	3'182277	3'0621906	1'1865707
8.	3'636888	3'4996464	1'3560808
9.	4'091499	3'9371022	1'5255909

NO. 3. JAPANESE EQUIVALENTS TO

	Shanghai tael.	Mexican peso.	Javanese rix-dollar.	Philippine dollar.
1.	1'379289	1'007428	'9737965	'9630384
2.	2'758578	2'014856	1'9475930	1'9260768
3.	4'137867	3'022284	2'9213895	2'8891152
4.	5'517156	4'029712	3'8951860	3'8521536
5.	6'896445	5'037140	4'8689825	4'8151920
6.	8'275734	6'044568	5'8427790	5'7782304
7.	9'655023	7'051996	6'8165755	6'7412688
8.	11'034312	8'059424	7'7903720	7'7043072
9.	12'413601	9'066852	8'7641685	8'6673456

TABLE XXV

	Columbian sol.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	·9274253	·8346827	·7417792	·6045568
2.	1·8548506	1·6693654	1·4835584	1·2091136
3.	2·7822759	2·5040481	2·2253376	1·8136704
4.	3·7097012	3·3387308	2·9671168	2·4182272
5.	4·6371265	4·1734135	3·7088960	3·0227840
6.	5·5645518	5·0080962	4·4506752	3·6273408
7.	6·4919771	5·8427789	5·1924544	4·2318976
8.	7·4194024	6·6774616	5·9342336	4·8364544
9.	8·3468277	7·5121443	6·6760128	5·4410112

	Austrian florin.	British Indian rupee.	Persian kran.
1.	4579878	·4407051	·1707692
2.	·9159756	·8814102	·3415384
3.	1·3739634	1·3221153	·5123076
4.	1·8319512	1·7628204	·6830768
5.	2·2899390	2·2035255	·8538460
6.	2·7479268	2·6442306	1·0246152
7.	3·2059146	3·0849357	1·1953844
8.	3·6639024	3·5256408	1·3661536
9.	4·1218902	3·9663459	1·5369228

NO. 4. JAVANESE EQUIVALENTS TO

	Shanghai tael.	Mexican dollar.	Japanese yen.	Philippine dollar.
1.	1·416404	1·034536	1·026909	·9889524
2.	2·832808	2·069072	2·053818	1·9779048
3.	4·249212	3·103608	3·080727	2·9668572
4.	5·665616	4·138144	4·107636	3·9558096
5.	7·082020	5·172680	5·134545	4·9447620
6.	8·498424	6·207216	6·161454	5·9337144
7.	9·914828	7·241752	7·188363	6·9226668
8.	11·331232	8·276288	8·215272	7·9116192
9.	12·747636	9·310824	9·242181	8·9005716

	Columbian sol.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	·952381	·8571429	·7617394	·6207218
2.	1·904762	1·7142858	1·5234788	1·2414436
3.	2·857143	2·5714287	2·2852182	1·8621654
4.	3·809524	3·4285716	3·0469576	2·4828872
5.	4·761905	4·2857145	3·8086970	3·1036090
6.	5·714286	5·1428574	4·5704364	3·7243308
7.	6·666667	6·0000003	5·3321758	4·3450526
8.	7·619048	6·8571432	6·0939152	4·9657744
9.	8·571429	7·7142861	6·8556546	5·5864962

FIXED SILVER EQUIVALENTS

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	Austrian florin.	British Indian rupee.	Persian kran.
1.	4703116	4525639	1753644
2.	9406232	9051278	3507288
3.	14109348	13576917	5260932
4.	18812464	18102556	7014576
5.	23515580	22628195	8768220
6.	28218696	27153834	10521864
7.	32921812	31679473	12275508
8.	37624928	36205112	14029152
9.	42328044	40730741	15782796

NO. 5. PHILIPPINESE EQUIVALENTS TO

	Shanghai tael.	Mexican dollar.	Japanese yen.	Javanese rixdollar.
1.	1432227	1046093	103838	1011171
2.	2864454	2092186	207676	2022342
3.	4296681	3138279	311514	3033513
4.	5728908	4184372	415352	4044684
5.	7161135	5230465	519190	5055855
6.	8593362	6276558	623028	6067026
7.	10025589	7322651	726866	7078197
8.	11457816	8368744	830704	8089368
9.	12890043	9414837	934542	9100539

	Columbian sol.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	96302	866718	7702488	6276559
2.	192604	1733436	15404976	12553118
3.	288906	2600154	23107464	18829677
4.	385208	3466872	30809952	25106236
5.	481510	4333590	38512440	31382795
6.	577812	5200308	46214928	37659354
7.	674114	6067026	53917416	43935913
8.	770416	6933744	61619904	50212472
9.	866718	7800162	69322392	56489031

	Austrian florin.	British Indian rupee.	Persian kran.
1.	4755654	4576195	1773234
2.	9511308	9152390	3546468
3.	14266962	13728585	5319702
4.	19022616	18304780	7092936
5.	23778270	22880975	8866170
6.	28533924	27457170	10639404
7.	33289578	32033365	12412638
8.	38045232	36609560	14185872
9.	42800886	41185755	15959106

No. 6. COLUMBIAN EQUIVALENTS TO

	Shanghai tael.	Mexican dollar.	Japanese yen.	Japanese rixdollar.
1.	1'487224	1'086263	1'078254	1'05
2.	2'974448	2'172526	2'156508	2'10
3.	4'461672	3'258789	3'234762	3'15
4.	5'948806	4'345052	4'313016	4'20
5.	9'436120	5'431315	5'391270	5'25
6.	8'923344	6'517578	6'469524	6'30
7.	10'410568	7'603841	7'547778	7'35
8.	11'897792	8'690104	8'626032	8'40
9.	13'385016	9'776367	9'704286	9'45

	Philippine dollar.	Bolivian boliviano.	Russian rouble.	Siamese tical.
1.	1'0384	'9	'7998264	'6517579
2.	2'0768	1'8	1'5996528	1'3035158
3.	3'1152	2'7	2'3994792	1'9552737
4.	4'1536	3'6	3'1993056	2'6070316
5.	5'1920	4'5	3'9991320	3'2587895
6.	6'2304	5'4	4'7989584	3'9105474
7.	7'2688	6'3	5'5987848	4'5623053
8.	8'3072	7'2	6'3986112	5'2140632
9.	9'3456	8'1	7'1984376	5'8658211

	Austrian florin.	British Indian rupee.	Persian kran.
1.	'4938272	'4751921	'1841326
2.	'9876544	'9503842	'3682652
3.	1'4814816	1'4255763	'5523978
4.	1'9753088	1'9007684	'7365304
5.	2'4691360	2'3759605	'9206630
6.	2'9629632	2'8511526	1'1047956
7.	3'4567904	3'3263447	1'2889282
8.	3'9506176	3'8015368	1'4730608
9.	3'4444448	4'2767289	1'6571934

No. 7. BOLIVIAN EQUIVALENTS TO

	Shanghai tael.	Mexican dollar.	Japanese yen.	Japanese rixdollar.
1.	1'652471	1'206959	1'19806	1'166667
2.	3'304942	2'413918	2'39612	2'333334
3.	4'957413	3'620877	3'59418	3'500001
4.	6'609884	4'827836	4'79224	4'666668
5.	8'262355	6'034795	5'99030	5'833335
6.	9'914826	7'241754	7'18836	7'000002
7.	11'567297	8'448713	8'38642	8'166669
8.	13'219768	9'655672	9'58448	9'333336
9.	14'872239	10'862631	10'78254	10'500003

FIXED SILVER EQUIVALENTS

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	Philippine dollar.	Columbian sol.	Russian rouble.	Siamese tical.
1.	1'153778	1'111111	888696	7241755
2.	2'307556	2'222222	1'777392	1'4483510
3.	3'461334	3'333333	2'666088	2'1725265
4.	4'615112	4'444444	3'554784	2'8967020
5.	5'768890	5'555555	4'443480	3'6208775
6.	6'922668	6'666666	5'332176	4'3450530
7.	8'676446	7'777777	6'220872	5'0692285
8.	9'230224	8'888888	7'109568	5'7934040
9.	10'384002	9'999999	7'998264	6'5175795

	Austrian florin.	British Indian rupee.	Persian kran.
1.	5486968	5279912	2045918
2.	1'0973936	1'0559824	4091836
3.	1'6460904	1'5839736	6137754
4.	2'1947872	2'1119648	8183672
5.	2'7434840	2'6399560	1'0229590
6.	3'2921808	3'1679472	1'2275508
7.	3'8408776	3'6959384	1'4321426
8.	4'3895744	4'2239296	1'6367344
9.	4'9382712	4'7519208	1'8413262

NO. 8. RUSSIAN EQUIVALENTS TO

	Shanghai tael.	Mexican dollar.	Japanese yen.	Japanese rixdollar.
1.	1'8594333	1'358123	1'34811	1'312785
2.	3'7188666	2'716246	2'69622	2'625570
3.	5'5782999	4'074369	4'04433	3'938355
4.	7'4377332	5'432492	5'39244	5'251140
5.	9'2971665	6'790615	6'74055	6'563925
6.	11'1565998	8'148738	8'08866	7'876710
7.	13'0160331	9'506861	8'43677	9'189495
8.	14'8754664	10'864984	10'78488	10'502280
9.	16'7348997	12'223107	12'13299	11'815065

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Siamese tical.
1.	1'298282	1'250271	1'125244	8148742
2.	2'596564	2'500542	2'250488	1'6297484
3.	3'894846	3'750813	3'375732	2'4446226
4.	5'193128	5'001084	4'500976	3'2594968
5.	6'491410	6'251355	5'626220	4'0743710
6.	7'789692	7'501626	6'751464	4'8892452
7.	9'087974	8'751897	7'876708	5'7041194
8.	10'386256	10'002168	9'001952	6'5189936
9.	11'684538	11'252439	10'127196	7'3338678

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	Austrian florin.	British Indian rupee.	Persian kran.
1.	6174179	594119	2302157
2.	12348358	1188238	4604314
3.	18522537	1782357	6906471
4.	24696716	2376476	9208628
5.	30870895	2970595	11510785
6.	37045074	3564714	13812942
7.	43219253	4158833	16115099
8.	49393432	4752952	18417256
9.	55567611	5347071	20719413

No. 9. SIAMESE EQUIVALENTS TO

	Shanghae tael.	Mexican dollar.	Japanese yen.	Japanese rix/dollar.
1.	2281866	1666666	1654378	1611028
2.	4563732	3333332	3308756	3222056
3.	6845598	4999998	4963134	4833084
4.	9127464	6666664	6617512	6444112
5.	11409330	8333330	8271890	8055140
6.	13691196	9999996	9926268	9666168
7.	15973062	11666662	11580646	11277196
8.	18254928	13333328	13235024	12888224
9.	20536794	14999994	14889402	14499252

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	159323	1534312	1380881	1227183
2.	318646	3068624	2761762	2454366
3.	477969	4602936	4142643	3681549
4.	637292	6137248	5523524	4908732
5.	796615	7671560	6904405	6135915
6.	955938	9205872	8285286	7363098
7.	1115261	10740184	9666167	8596281
8.	1274584	12274496	11047048	9817464
9.	1433907	13808808	12427929	11044647

	Austrian florin.	British Indian rupee.	Persian kran.
1.	07576849	7290929	2825169
2.	15153698	14581858	5650338
3.	22730547	21872787	8475507
4.	30307396	29163716	11300676
5.	37884245	36454645	14125845
6.	45461094	43745574	16951014
7.	53037943	51036503	19776183
8.	60614792	58327432	22601352
9.	68191641	65618361	25426521

FIXED SILVER EQUIVALENTS

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NO. 10. AUSTRIAN EQUIVALENTS TO

	Shanghai tael.	Mexican dollar.	Japanese yen.	Javanese rix-dollar.
1.	3'011629	2'199683	2'183464	2'12625
2.	6'023258	4'399366	4'366928	4'25250
3.	9'034887	6'599049	6'550392	6'37875
4.	12'046516	8'798732	8'733856	8'50500
5.	15'058145	10'998415	10'917320	10'63125
6.	18'069774	13'198098	13'100784	12'75750
7.	21'081403	15'397781	15'284248	14'88375
8.	24'093032	17'597464	17'467712	17'01000
9.	27'104661	19'797147	19'651176	19'13625

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	2'10276	2'025	1'8225	1'619648
2.	4'20552	4'050	3'6450	3'239296
3.	6'30828	6'075	5'4675	4'858944
4.	8'41104	8'100	7'2900	6'478592
5.	10'51380	10'125	9'1125	8'098240
6.	12'61656	12'150	10'9350	9'717888
7.	14'71932	14'175	12'7575	11'337536
8.	16'82208	16'200	14'5800	12'957184
9.	18'92484	18'225	16'4025	14'576832

	Siamese tical.	British Indian rupee.	Persian kran.
1.	1'31981	'962264	'3728685
2.	2'63962	1'924528	'7457370
3.	3'95943	2'886792	1'1186055
4.	5'27924	3'849056	1'4914740
5.	6'59905	4'811320	1'8643425
6.	7'91886	5'773584	2'2372110
7.	9'23867	6'735848	2'6100795
8.	10'55848	7'698112	2'9829480
9.	11'87829	8'660376	3'3558165

NO. 11. BRITISH INDIAN EQUIVALENTS TO

	Shanghai tael.	Mexican dollar.	Japanese yen.	Javanese rix-dollar.
1.	3'129732	2'285945	2'269091	2'209633
2.	6'259464	4'571890	4'538182	4'419266
3.	9'389196	6'857835	6'807273	6'628899
4.	12'518928	9'143780	9'076364	8'838532
5.	15'648660	11'429725	11'345455	11'048165
6.	18'778392	13'715670	13'614546	13'257798
7.	21'908124	16'001615	15'883637	15'467431
8.	25'037856	18'287560	18'152728	17'677064
9.	28'167588	20'573505	20'421819	19'886697

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	2'185222	2'104412	1'893971	1'683164
2.	4'370444	4'208824	3'787942	3'366328
3.	6'555666	6'313236	5'681913	5'049492
4.	8'740888	8'417648	7'575884	6'732656
5.	10'926110	10'522060	9'469855	8'415820
6.	13'111332	12'626472	11'363826	10'098984
7.	15'296554	14'730884	13'257797	11'782148
8.	17'481776	16'835296	15'151768	13'465312
9.	19'666998	18'939708	17'045739	15'148476

	Siamese tical.	Austrian florin.	Persian kran.
1.	1'371567	1'039216	3'874909
2.	2'743134	2'078432	7'749818
3.	4'114701	3'117648	1'1624727
4.	5'486268	4'156864	1'5499636
5.	6'857835	5'196080	1'9374545
6.	8'229402	6'235296	2'3249454
7.	9'600969	7'274512	2'7124363
8.	10'972536	8'313728	3'0999272
9.	12'344103	9'352944	3'4874181

NO. 12. PERSIAN EQUIVALENTS TO

	Shanghai tael.	Mexican dollar.	Japanese yen.	Javanese rix-dollar.
1.	8'076918	5'899352	5'855856	5'702412
2.	16'153836	11'798704	11'711712	11'404824
3.	24'230754	17'698056	17'567568	17'107236
4.	32'307672	23'597408	23'423424	22'809648
5.	40'384590	29'496760	29'279280	28'512060
6.	48'461508	35'396112	35'135136	34'214472
7.	56'538426	41'295464	40'990992	39'916884
8.	64'615344	47'194816	46'846848	45'619296
9.	72'692262	53'094168	52'702704	51'321708

	Philippine dollar.	Columbian sol.	Bolivian boliviano.	Russian rouble.
1.	5'639414	5'430869	4'887782	4'343752
2.	11'278828	10'861738	9'775564	8'687504
3.	16'918242	16'292607	14'663346	13'031256
4.	22'557656	21'723476	19'551128	17'375008
5.	28'197070	27'154345	24'438910	21'718760
6.	33'836484	32'585214	29'326692	26'062512
7.	39'475898	38'016083	34'214474	30'406264
8.	45'115312	43'446952	39'102256	34'750016
9.	50'754726	48'877821	43'990038	39'093768

FIXED SILVER EQUIVALENTS

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	Siamese tical.	Austrian florin.	British Indian rupee.
1.	3'539612	2'68191	2'580706
2.	7'079224	5'36382	5'161412
3.	10'618836	8'04573	7'742118
4.	14'158448	10'72764	10'322824
5.	17'698060	13'40955	12'903530
6.	21'237672	16'09146	15'484236
7.	24'777284	18'77337	18'064942
8.	28'316896	21'45528	20'645648
9.	31'856508	24'13719	23'226354

USE OF TABLE XXVII.

Find the equivalent to 17,298·4 British pounds in Mexican dollars, at the ratio of 36·269 between silver and gold.

See Table of Mexican Equivalents, and under British find

£10,000	=	2995952
7,000	=	20971664
200	=	5991904
90	=	26963568
8	=	23967616
·4	=	11983808

$$\underline{\underline{5182'51760768}} \times 36'269 = 187,964'7 \text{ pesos : Ans.}$$

Check this by weight. The British pound is 73'223817 decigrams of pure gold. The Mexican peso is 244'409184 decigrams of pure silver.

The sum is :—

$$\frac{17,298'4 \times 36'269 \times 73'223817}{244'409184} = 187,964'7 \text{ pesos : Ans.}$$





TABLE XXVII.

Multiples of Silver equivalents to Gold at the ratio of 1 to 1.

NO. 1. SHANGHAE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'2222635	'2188233	'1976738	'04858293
2.	'4445270	'4376466	'3953476	'09716586
3.	'6667905	'6564699	'5930214	'14574879
4.	'8890540	'8752932	'7906952	'19433172
5.	1'1113175	1'0941165	'9883690	'24291465
6.	1'3335810	1'3129398	1'1860402	'29149758
7.	1'5558445	1'5317631	1'3837166	'34008051
8.	1'7781080	1'7505864	1'5813904	'38866344
9.	2'0003715	1'9694097	1'7790642	'43724637

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'04650421	'04496464	'04338024	'02455818
2.	'09300842	'08992928	'08676048	'04911636
3.	'13951263	'13489392	'13014072	'07367454
4.	'18601684	'17985856	'17352096	'09823272
5.	'23252105	'22482320	'21690120	'12279090
6.	'27902526	'26978784	'26028144	'14734908
7.	'32552947	'31475248	'30366168	'17190726
8.	'37203368	'35971712	'34704192	'19646544
9.	'41853789	'40468176	'39042216	'22102362

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'02313395	'02241312	'01807394	'01641173
2.	'04626790	'04482624	'03614788	'03282346
3.	'06940185	'06723936	'05422182	'04923519
4.	'09253580	'08965248	'07229576	'06564692
5.	'11566975	'11206560	'09036970	'08205865
6.	'13880370	'13447872	'10844368	'09847038
7.	'16193765	'15689184	'12651754	'11488211
8.	'18507160	'17930496	'14459152	'13129384
9.	'20820555	'20171708	'16266546	'14770557

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'01458822	'01205007	'01071115	'009111025
2.	'02917644	'02410014	'02142230	'018222050
3.	'04376466	'03615021	'03213345	'027333075
4.	'05835288	'04820028	'04284460	'036444100
5.	'07294110	'06025035	'05355575	'045555125
6.	'08752932	'07230042	'06426690	'054666150
7.	'10211754	'08435049	'07497805	'063777175
8.	'11670576	'09640056	'08568920	'072888200
9.	'13129398	'10845063	'09640035	'081999225

	French franc.
1.	'008676047
2.	'017352094
3.	'026028141
4.	'034704188
5.	'043380235
6.	'052056282
7.	'060732329
8.	'069408376
9.	'078084423

No. 2. MEXICAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'3043053	'2995952	'270639	'06651584
2.	'6086106	'5991904	'541278	'13303168
3.	'9129159	'8987856	'811917	'19954752
4.	'12172212	'11983808	'1082556	'26606336
5.	'15215265	'14979760	'1353195	'33257920
6.	'18258318	'17975712	'1623834	'39909504
7.	'21301371	'20971664	'1894473	'46561088
8.	'24344424	'23967616	'2165112	'53212672
9.	'27387477	'26963568	'2435751	'59864256

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'06366983	'06156196	'05939273	'03362309
2.	'12733966	'12312392	'11878546	'06724618
3.	'19100949	'18468588	'17817819	'10086927
4.	'25467932	'24624784	'23757092	'13449236
5.	'31834915	'30780980	'29696365	'16811545
6.	'38201898	'36937176	'35635638	'20173854
7.	'44568881	'43093372	'41574911	'23536163
8.	'50935864	'49249568	'47514184	'26898472
9.	'57302847	'55405764	'53453457	'30260781

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'03167314	'03068625	'02474539	'02246962
2.	'06334628	'06137250	'04949078	'04493924
3.	'09501942	'09205875	'07423617	'06740886
4.	'12669256	'12274500	'09898156	'08987848
5.	'15836570	'15343125	'12372695	'11234810
6.	'19003884	'18411750	'14847234	'13481772
7.	'22171198	'21480375	'17321773	'15728734
8.	'25338512	'24549000	'19796312	'17975696
9.	'28505826	'27617625	'22270851	'20222658

SILVER EQUIVALENTS TO GOLD

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	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'01997301	01649798	01666485	'01247408
2.	'03994602	'03299596	'02932970	'02494816
3.	'05991903	'04949394	'04399455	'03742224
4.	'07989204	'06599192	'05865940	'04989632
5.	'09986505	'08248990	'07332425	'06237040
6.	'11983806	'09898788	'08798910	'07484448
7.	'13981107	'11548586	'10265395	'08731856
8.	'15978408	'13198384	'11731880	'09979264
9.	'17975709	'14848182	'13198365	'11226672

	French franc
1.	'01187855
2.	'02375710
3.	'03563565
4.	'04751420
5.	'05939275
6.	'07127130
7.	'08314985
8.	'09502840
9.	'10690695

NO. 3. JAPANESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'3065656	'3018205	'2726493	'06700991
2.	'6131312	'6036410	'5452986	'13401982
3.	'9196968	'9054615	'8179479	'20102973
4.	1'2262624	1'2072820	1'0905972	'26803964
5.	1'5328280	1'5091025	1'3632465	'33504955
6.	1'8393936	1'8109230	1'6358958	'40205946
7.	2'1459592	2'1127435	1'9085451	'46906937
8.	2'4525248	2'4145640	2'1811944	'53607928
9.	2'7590904	2'7163845	2'4538437	'60308919

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'06414275	'06201923	'05983389	'03387283
2.	'12828550	'12403846	'11966778	'06774566
3.	'19242825	'18605769	'17950167	'10161849
4.	'25657100	'24807692	'23933556	'13549132
5.	'32071375	'31009615	'29916945	'16936415
6.	'38485650	'37211538	'35900334	'20323698
7.	'44899925	'43413461	'41883723	'23710981
8.	'51314200	'49615384	'47867112	'27008264
9.	'57728475	'55817307	'53850501	'30485547

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'0319084	'03091418	'02492919	'02263652
2.	'0638168	'06182836	'04985838	'04527304
3.	'0957252	'09274254	'07478757	'06790956
4.	'1276336	'12365672	'09971676	'09054608
5.	'1595420	'15457090	'12464595	'11318260
6.	'1914504	'18548508	'14957514	'13581912
7.	'2233588	'21639926	'17450433	'15845564
8.	'2552672	'24731344	'19943352	'18109216
9.	'2871756	'27822762	'22436271	'20372868

	British Indian rupee.	Scandinavian crown.	German mark.	Aus -Hungarian crown.
1.	'02012137	'01662052	'01477378	'01256674
2.	'04024274	'03324104	'02954756	'02513348
3.	'06036411	'04986156	'04432134	'03770022
4.	'08048548	'06648208	'05909512	'05026696
5.	'10060685	'08310260	'07386890	'06283370
6.	'12072822	'09972312	'08864268	'07540044
7.	'14084959	'11634364	'10341646	'08796718
8.	'16097096	'13296416	'11819024	'10053392
9.	'18109233	'14958468	'13296402	'11310066

	French franc.
1.	'01196678
2.	'02393356
3.	'03590034
4.	'04786712
5.	'05983390
6.	'07180068
7.	'08376746
8.	'09573424
9.	'10770102

NO. 4. JAVANESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'3148148	'3099421	'2799859	'06881305
2.	'6296296	'6198842	'5599718	'13762610
3.	'9444444	'9298263	'8399577	'20643915
4.	1'2592592	1'2397684	1'1199436	'27525220
5.	1'5740740	1'5497105	1'3999295	'34406525
6.	1'8888888	1'8596526	1'6799154	'41287830
7.	2'2037036	2'1695947	1'9599013	'48169135
8.	2'5185184	2'4795368	2'2398872	'55050440
9.	2'8333332	2'7894789	2'5198731	'61931745

SILVER EQUIVALENTS TO GOLD

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	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'06586874	'06368808	'06144393	'0347843
2.	'13173748	'12737616	'12288786	'0695686
3.	'19760622	'19106424	'18433179	'1043529
4.	'26347496	'25475232	'24577572	'1391372
5.	'32934370	'31844040	'40721965	'1739215
6.	'39521244	'38212848	'46866358	'2087058
7.	'46108118	'44581656	'53010751	'2434901
8.	'52694992	'50950464	'49155144	'2782744
9.	'59281866	'57319272	'55299537	'3130587

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'03276701	'03174603	'0256	'02324564
2.	'06553402	'06349206	'0512	'04649128
3.	'09830103	'09523809	'0768	'06973692
4.	'13106804	'12698412	'1024	'09298256
5.	'16383505	'15873015	'1280	'11622820
6.	'19660206	'19047618	'1536	'13947384
7.	'22936907	'22222221	'1792	'16271948
8.	'26213608	'25396824	'2048	'18596512
9.	'29490309	'28571427	'2304	'20921076

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'02066281	'01706776	'01517132	'01290489
2.	'04132562	'03413552	'03034264	'02580978
3.	'06198843	'05120328	'04551396	'03871467
4.	'08265124	'06827104	'06068528	'05161956
5.	'10331405	'08533880	'07585660	'06452445
6.	'12397686	'10240656	'09102792	'07742934
7.	'14463967	'11947432	'10619924	'09033423
8.	'16530248	'13654208	'12137056	'10323912
9.	'18596529	'15360984	'13654188	'11614401

	French franc.
1.	'01228879
2.	'02457758
3.	'03686637
4.	'04915516
5.	'06144395
6.	'07373274
7.	'08602153
8.	'09831032
9.	'11059911

NO. 5. PHILIPPINESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'3183316	'3134045	'2831136	'06958176
2.	'6366632	'6268090	'5662272	'13916352
3.	'9549948	'9402135	'8493408	'20874528
4.	1'2733264	1'2536180	1'1324544	'27832704
5.	1'5916580	1'5670225	1'4155680	'34790880
6.	1'9099896	1'8804270	1'6986816	'41749056
7.	2'2283212	2'1938315	1'9817952	'48707232
8.	2'5466528	2'5072360	2'2649088	'55665408
9.	2'8649844	2'8206405	2'5480224	'62623584

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'06660456	'06439954	'06213032	'03577288
2.	'13320912	'12879908	'12426064	'07034576
3.	'19981368	'19319862	'18639096	'10551864
4.	'26641824	'25759816	'24852128	'14069152
5.	'33302280	'32199770	'31065160	'17586440
6.	'39962736	'38639724	'37278192	'21103728
7.	'46623192	'45079678	'43491224	'24621016
8.	'53283648	'51519632	'49704256	'28138304
9.	'59944104	'57959586	'55917288	'31655592

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'03313305	'03210067	'02588598	'02350532
2.	'06626610	'06420134	'05177196	'04701064
3.	'09939915	'09630201	'07765794	'07051596
4.	'13253220	'12840268	'10354392	'09402128
5.	'16566525	'16050335	'12942990	'11752660
6.	'19879830	'19260402	'15531588	'14103192
7.	'23193135	'22470469	'18120186	'16453724
8.	'26506440	'25680536	'20708784	'18804256
9.	'29819745	'28890603	'23297382	'21154788

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'02089363	'01725842	'0153408	'01304905
2.	'04178726	'03451684	'0306816	'02609810
3.	'06268089	'05177526	'0460224	'03914715
4.	'08357452	'06903368	'0613632	'05219620
5.	'10446815	'08629210	'0767040	'06524525
6.	'12536178	'10355052	'0920448	'07829430
7.	'14625541	'12080894	'1073856	'09134335
8.	'16714904	'13806736	'1227264	'10439240
9.	'18804267	'15532578	'1380672	'11744145

	French franc
1.	'01242606
2.	'02485212
3.	'03727818
4.	'04970424
5.	'06213030
6.	'07455636
7.	'08698242
8.	'09940848
9.	'11183454

No. 6. COLUMBIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'3305556	'3254392	'2939852	'0722537
2.	'6611112	'6508784	'5879704	'1445074
3.	'9916668	'9763176	'8819556	'2167611
4.	1'3222224	1'3017568	1'1759408	'2890148
5.	1'6527780	1'6271960	1'4699260	'3612685
6.	1'9833336	1'9526352	1'7639112	'4335222
7.	2'3138892	2'2780744	2'0578964	'5057759
8.	2'6444448	2'6035136	2'3518816	'5780296
9.	2'9750004	2'9289528	2'6458668	'6502833

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'06916218	'06687248	'06451613	'03652352
2.	'13832436	'13374496	'12903226	'07304704
3.	'20748654	'20061744	'19354839	'10957056
4.	'27664872	'26748992	'25806452	'14609408
5.	'34581090	'33436240	'32258065	'18261760
6.	'41497308	'40123488	'38709678	'21914112
7.	'48413526	'46810736	'45161291	'25566464
8.	'55329744	'53497984	'51612904	'29218816
9.	'62245962	'60185232	'58064517	'32871168

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'03440536	'03333333	'02688000	'02440792
2.	'06881072	'06666666	'05376000	'04881584
3.	'10321608	'09999999	'08064000	'07322376
4.	'13762144	'13333332	'10752000	'09763168
5.	'17202680	'16666665	'13440000	'12203960
6.	'20643216	'19999998	'16128000	'14644752
7.	'24083752	'23333331	'18816000	'17085544
8.	'27524288	'26666664	'21504000	'19526336
9.	'30964824	'29999997	'24192000	'21967128

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'02169595	'01792115	'01592988	'01355014
2.	'04339190	'03584230	'03185976	'02710028
3.	'06508785	'05376345	'04778964	'04065042
4.	'08678380	'07168460	'06371952	'05420056
5.	'10847975	'08960575	'07964940	'06775070
6.	'13017570	'10752690	'09557928	'08130084
7.	'15187165	'12544805	'11150916	'09485098
8.	'17356760	'14336920	'12743904	'10840112
9.	'19526355	'16129035	'14336892	'12195126

	French franc.
1.	'01290323
2.	'02580646
3.	'03870969
4.	'05161292
5.	'06451615
6.	'07741938
7.	'09032261
8.	'10322584
9.	'11612907

No. 7. BOLIVIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'367284	'3615991	'3266502	'08028189
2.	'734568	'7231982	'6533004	'16056378
3.	1'101852	1'0847973	'9799506	'24084567
4.	1'469136	1'4463964	1'3066008	'32112756
5.	1'836420	1'8079955	1'6332510	'40140945
6.	2'203704	2'1695946	1'9599012	'48169134
7.	2'570988	2'5311937	2'2865514	'56197323
8.	2'938272	2'8927928	2'6132016	'64225512
9.	3'305556	3'2543919	2'9398518	'72253701

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'07684686	'07430276	'07168459	'04058169
2.	'15369372	'14860552	'14336918	'08116338
3.	'23054058	'22290828	'21505377	'12174507
4.	'30738744	'29721104	'28673836	'16232676
5.	'38423430	'37151380	'35842295	'20290845
6.	'46108116	'44581656	'43010754	'24349014
7.	'53792802	'52011932	'50179213	'28407183
8.	'61477488	'59442208	'57347672	'32465352
9.	'69162174	'66872484	'64516131	'36523521

	Russian rouble	Japanese yen.	Holland guilder.	Chilian condor.
1.	'03822818	'03703704	'02986667	'02711991
2.	'07645636	'07407408	'05973334	'05423982
3.	'11468454	'11111112	'08960001	'08135973
4.	'15291272	'14814816	'11946668	'10847964
5.	'19114090	'18518520	'14933335	'13559955
6.	'22936908	'22222224	'17920002	'16271946
7.	'26759726	'25925928	'20906669	'18983937
8.	'30582544	'29629632	'23893336	'21695928
9.	'34405362	'33333336	'26880003	'24407919

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'02410661	'01991239	'01769987	'01505571
2.	'04821322	'03982478	'03539974	'03011142
3.	'07231983	'05973717	'05309961	'04516713
4.	'09642644	'07964956	'07079948	'06022284
5.	'12053305	'09956195	'08849935	'07527855
6.	'14463966	'11947434	'10619922	'09033426
7.	'16874627	'13938673	'12389909	'10538997
8.	'19285288	'15929912	'14159896	'12044568
9.	'21695949	'17921151	'15929883	'13550139

	French franc.
1.	'01433692
2.	'02867384
3.	'04301076
4.	'05734768
5.	'07168460
6.	'08602152
7.	'10035844
8.	'11469536
9.	'12903228

NO. 8. RUSSIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'4132841	'4068873	'3675612	'9033673
2.	'8265682	'8137746	'7351224	1'8067346
3.	1'2398523	1'2206619	1'1026836	2'7101019
4.	1'6531364	1'6275492	1'4702448	3'6134692
5.	2'0664205	2'0344365	1'8378060	4'5168365
6.	2'4797046	2'4413238	2'2053672	5'4202038
7.	2'8929887	2'8482111	2'5729284	6'3235711
8.	3'3062728	3'2550984	2'9404896	7'2269384
9.	3'7195569	3'6619857	3'3080508	8'1303057

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'08647149	'8360875	'08066266	'04566431
2.	'17294298	1'6721750	'16132532	'09132862
3.	'25941447	2'5082625	'24198798	'13699293
4.	'34588596	3'3443500	'32265064	'18265724
5.	'43235745	4'1804375	'40331330	'22832155
6.	'51882894	5'0165250	'48397596	'27398586
7.	'60530043	5'8526125	'56463862	'31965017
8.	'69177192	6'6887000	'64530128	'36531448
9.	'77824341	7'5247875	'72596394	'41097879

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'04301603	'04167571	'03360729	'03051652
2.	'08603206	'08335142	'06721458	'06103304
3.	'12904809	'12502713	'10082187	'09154956
4.	'17206412	'16670284	'13442916	'12206608
5.	'21508015	'20837855	'16803645	'15258260
6.	'25809618	'25005426	'20164374	'18309912
7.	'30111221	'29172997	'23525103	'21361564
8.	'34412824	'33340568	'26885832	'24413216
9.	'38714427	'37508139	'30246561	'27464868

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'02712582	'0224063	'01991668	'01694135
2.	'05425164	'0448126	'03983336	'03388270
3.	'08137746	'0672189	'05975004	'05082405
4.	'10850328	'0896252	'07966672	'06776540
5.	'13562910	'1120315	'09958340	'08470675
6.	'16275492	'1344378	'11950008	'10164810
7.	'18988074	'1568441	'13941676	'11858945
8.	'21700656	'1792504	'15933344	'13553080
9.	'24413238	'2016567	'17925012	'15247215

	French franc.
1.	'01613253
2.	'03226506
3.	'04839759
4.	'06453012
5.	'08066265
6.	'09679518
7.	'11292771
8.	'12906024
9.	'14519277

No. 9. SIAMESE EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'5071754	'4993253	'451065	'1108597
2.	'10143508	'9986506	'902130	'2217194
3.	'1'5215262	'1'4979759	'1'353195	'3325791
4.	'2'0287016	'1'9973012	'1'804260	'4434388
5.	'2'5358770	'2'4966265	'2'255325	'5542985
6.	'3'0430524	'2'9959518	'2'706390	'6651582
7.	'3'5502278	'3'4952771	'3'157455	'7760179
8.	'4'0574032	'3'9946024	'3'608520	'8868776
9.	'4'5645786	'4'4939277	'4'059585	'9977373

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'1061164	'1026033	'09898787	'05603847
2.	'2122328	'2052066	'19797574	'11207694
3.	'3183492	'3078099	'29696361	'16811541
4.	'4244656	'4104132	'39595148	'22415388
5.	'5305820	'5130165	'49493935	'28019235
6.	'6366984	'6156198	'59392722	'33623082
7.	'7428148	'7182231	'69291509	'39226929
8.	'8489312	'8208264	'79190296	'44830776
9.	'9550476	'9234297	'89089083	'50434623

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'05278856	'05114373	'04124231	'03744937
2.	'10557712	'10228746	'08248462	'07489874
3.	'15836568	'15343119	'12372693	'11234811
4.	'21115424	'20457492	'16496924	'14979748
5.	'26394280	'25571865	'20621155	'18724685
6.	'31673136	'30686238	'24745386	'22469622
7.	'36951992	'35800611	'28869617	'26214559
8.	'42230848	'40914984	'32993848	'29959496
9.	'47509704	'46029357	'37118079	'33704433

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'03328835	'02749663	'02444141	'02079014
2.	'06657670	'05499326	'04888882	'04158028
3.	'09986505	'08248989	'07332423	'06237042
4.	'13315340	'10998652	'09776564	'08316056
5.	'16644175	'13748315	'12220705	'10395070
6.	'19973010	'16497978	'14664846	'12474084
7.	'23301845	'19247641	'17108987	'14553098
8.	'26630680	'21997304	'19553128	'16632112
9.	'29959515	'24746967	'21997269	'18711126

	French franc.
1.	'01979757
2.	'03959514
3.	'05939271
4.	'07919028
5.	'09898785
6.	'11878542
7.	'13858299
8.	'15838056
9.	'17817813

NO. 10. AUSTRIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'669375	'6590144	'59532	'1463137
2.	1'338750	1'3180288	1'19064	'2926274
3.	2'008125	1'9770432	1'78596	'4389411
4.	2'677500	2'6360576	2'38128	'5852548
5.	3'346875	3'2950720	2'97660	'7315685
6.	4'016250	3'9540864	3'57192	'8778822
7.	4'685625	4'6131008	4'16724	1'0241959
8.	5'355000	5'2721152	4'76256	1'1705096
9.	6'024375	5'9311296	5'35788	1'3168233

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'1400534	'1354168	'1306452	'07396013
2.	'2801068	'2708336	'2612904	'14792026
3.	'4201602	'4062504	'3919356	'22188039
4.	'5602136	'5416672	'5225808	'29584052
5.	'7002670	'6770840	'6532260	'36980065
6.	'8403204	'8125008	'7838712	'44376078
7.	'9803738	'9479176	'9145164	'51772091
8.	1'1204272	1'0833344	1'0451616	'59168104
9.	1'2604806	1'2187512	1'1758068	'66564117

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'06967085	'0675	'054432	'04942604
2.	'13934170	'1350	'108864	'09885208
3.	'20901255	'2025	'163296	'14827812
4.	'27868340	'2700	'217728	'19770416
5.	'34835425	'3375	'272160	'24713020
6.	'41802510	'4055	'326592	'29655624
7.	'48769595	'4725	'381024	'34598228
8.	'55736680	'5400	'435456	'39540832
9.	'62703765	'6075	'489888	'44483436

SILVER EQUIVALENTS TO GOLD

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	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'04393429	'03629032	'03225802	'02743902
2.	'08786858	'07258064	'06451604	'05487804
3.	'13180287	'10887096	'09677406	'08231706
4.	'17573716	'14516128	'12903208	'10975608
5.	'21967145	'18145160	'16129010	'13719510
6.	'26360574	'21774192	'19354812	'16463412
7.	'30754003	'25403224	'22580614	'19207314
8.	'35147432	'29032256	'25806416	'21951216
9.	'39540861	'32661288	'29032218	'24695118

	French franc.
1.	'02612903
2.	'05225806
3.	'07838709
4.	'10451612
5.	'13064515
6.	'15677418
7.	'18290321
8.	'20903224
9.	'23516127

NO. II. BRITISH INDIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
1.	'6956251	'6848582	'618666	'1520516
2.	1'3912502	1'3697164	1'237332	'3041032
3.	2'0868753	2'0545746	1'855998	'4561548
4.	2'7825004	2'7394328	2'474664	'6082064
5.	3'4781255	3'4242910	3'093330	'7602580
6.	4'1737506	4'1091492	3'711996	'9123096
7.	4'8693757	4'7940074	4'330662	1'0643612
8.	5'5650008	5'4788656	4'949328	1'2164128
9.	6'2606259	6'1637238	5'567994	1'3684644

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'1455457	'1407273	'1357685	'07686054
2.	'2910914	'2814546	'2715370	'15372108
3.	'4366371	'4221819	'4073055	'23058162
4.	'5821828	'5629092	'5430740	'30744216
5.	'7277285	'7036365	'6788425	'38430270
6.	'8732742	'8443638	'8146110	'46116324
7.	1'0188199	'9850911	'9503795	'53802378
8.	1'1643656	1'1258184	1'0861480	'61488432
9.	1'3099113	1'2665457	1'2219165	'69174486

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'07240306	'07014707	'0565666	'05136432
2.	'14480612	'14029414	'1131332	'10272864
3.	'21720918	'21044121	'1696998	'15409296
4.	'28961224	'28058828	'2262664	'20545728
5.	'36201530	'35073535	'2828330	'25682160
6.	'43441836	'42088242	'3393996	'30818592
7.	'50682142	'49102949	'3959662	'35955024
8.	'57922448	'56117656	'4525328	'41091456
9.	'65162754	'63132363	'5090994	'46227888

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'04565721	'03771348	'03352304	'02851507
2.	'09131442	'07542696	'06704608	'05703014
3.	'13697163	'11314044	'10056912	'08554521
4.	'18262884	'15085392	'13409216	'11406028
5.	'22828605	'18856740	'16761520	'14257535
6.	'27394326	'22628088	'20113824	'17109042
7.	'31960047	'26399436	'23466128	'19960549
8.	'36525768	'30170784	'26818432	'22812056
9.	'41091489	'33942132	'30170736	'25663563

	French franc.
1.	'0271537
2.	'0543074
3.	'0814611
4.	'1086148
5.	'1357685
6.	'1629222
7.	'1900759
8.	'2172296
9.	'2443833

NO. 12. PERSIAN EQUIVALENTS TO

	Egyptian £.	British £.	Turkish £.	Portuguese milreis.
.	1'795204	1'767418	1'596595	0'3924004
2.	3'590408	3'534836	3'193190	0'7848008
3	5'385612	5'302254	4'789785	1'1772012
4.	7'180816	7'069672	6'386380	1'5696016
5.	8'976020	8'837090	7'982975	1'9620020
6.	10'771224	10'604508	9'579570	2'3544024
7.	12'566428	12'371926	11'176165	2'7468028
8.	14'361632	14'139344	12'772760	3'1392032
9.	16'156836	15'906762	14'369355	3'5316036

	Uruguayan peso.	U.S.A. dollar.	Argentine peso.	Brazilian milreis.
1.	'3756107	'3631757	'3503786	'1983544
2.	'7512214	'7263514	'7007572	'3967088
3.	1'1268321	1'0895271	1'0511358	'5950632
4.	1'5024428	1'4527028	1'4015144	'7934176
5.	1'8780535	1'8158785	1'7518930	'9917720
6.	2'2536642	2'1790542	2'1022716	1'1901264
7.	2'6292749	2'5422299	2'4526502	1'3884808
8.	3'0048856	2'9054056	2'8030288	1'5868352
9.	3'3804963	3'2685813	3'1534074	1'7851896

	Russian rouble.	Japanese yen.	Holland guilder.	Chilian condor.
1.	'186851	'181029	'1459818	'1325562
2.	'373702	'362058	'2919636	'2651124
3.	'560553	'543087	'4379454	'3976686
4.	'747404	'724116	'5839272	'5302248
5.	'934255	'905145	'7299090	'6627810
6.	1'121106	1'086174	'8758908	'7953372
7.	1'307957	1'267203	1'0218726	'9278934
8.	1'494808	1'448232	1'1678544	1'0604496
9.	1'681659	1'629261	1'3138362	1'1930058

	British Indian rupee.	Scandinavian crown.	German mark.	Aus.-Hungarian crown.
1.	'1178278	'0973274	'08651311	'07358901
2.	'2356556	'1946548	'17302622	'14717802
3.	'3534834	'2919822	'25953933	'22076703
4.	'4713112	'3893096	'34605244	'29435604
5.	'5891390	'4866370	'43256555	'36794505
6.	'7069668	'5839644	'51907866	'44153406
7.	'8247946	'6812918	'60559177	'51512307
8.	'9426224	'7786192	'69210488	'58871208
9.	1'0604502	'8759466	'77861799	'66230109

	French franc.
1.	'07007573
2.	'14015146
3.	'21022719
4.	'28030292
5.	'35037865
6.	'42045438
7.	'49053011
8.	'56060584
9.	'63068157

TABLE OF THE PRESENT CURRENCIES OF THE
DIFFERENT COUNTRIES AND ISLANDS OF THE WORLD.*

This is presented in six divisions—Europe, Asia, Africa, America, Australia, and the Islands of the seas. The following signs attached to the names of places indicate—*a*, possession of a mint; *g*, automatic gold; *g1*, gold-cum-coinage charge; *s*, automatic silver; *s1*, silver-cum-coinage charge; *sc*, silver-cum-counter charge; *ipg*, inconvertible paper based on gold; *ips*, inconvertible paper based on silver. Attached to the names of the islands are letters which indicate the power to which each belongs—*B*, Great Britain; *F*, France; *G*, Germany; *D*, Dutch; *S*, Spain; *Gr*, Greece; *I*, Italy; *J*, Japan; *Da*, Danish; *P*, Portugal; *C*, Chili; *T*, Turkey.

Europe.—Austria-Hungary, *a ipg*; Belgium, *a g1*; Bulgaria, *g1*; Denmark, *a g1*; Finland, *g1*; France, *a g1*; Germany, *a g1*; Gibraltar, Greece, *ipg*; Italy, *a ip*; Netherlands, *a g1*; Norway, *g1*; Portugal, *a ipg*; Roumania, *ipg*; Russia, *a g*; Servia, *ipg*; Spain, *a ipg*; Sweden, *g1*; Switzerland, *a g1*; Turkey.

Asia.—Afghanistan, *s*; Aleppo, Anam, *s*; Arabia, Asiatic Turkey, Bagdad, Beloochistan, *s*; Burma, *sc*; Cambodia, *s*; Camboja, *s*; China, *a s*; Cochin China, *s*; Corea, *s*; India, *a sc*; Malay Peninsula, *s*; Malacca, *s*; Mongolia, *s*; Persia, *a s1*; Russia in Asia, Siam, *a s1*; Syria, Thibet, Tonquin, *s*; Turkestan, *s*.

Africa.—Abyssinia, Algiers, Ashantee, Basutoland, *g*; Bechuanaland, *g*; British East Africa, *s*; Cameroons, Cape of Good Hope, *g*; Congo Free State, *g*; Damara Land, *s*; Egypt, *g*; French Congo, Gambia, Gold Coast, Lagos, Liberia, *g*; Morocco, Mozambique, Natal, *g*; Orange River Free State, Senegambia, Soudan, South African Republic, *g*; Tripoli, Tunis, Zanzibar, Zululand, *g*.

America.—*North*: Alaska, Canada, *g*; Mexico, *a s1*; United States, *a g*; *Central*: Belize, British Honduras, *g*; Costa Rica, *ips*; Guatemala, Honduras, Mosquito, Nicaragua, Salvador, *a ips*; *South*: Argentine Republic, *a ipg*; Bolivia, *a s1*; Brazil, *a ipg*; British Guiana, *g*; Chili, *ipg*; Dutch Guiana, *g*; Ecuador, French Guiana, *g*; New Granada, Paraguay, *ipg*; United States of Columbia, *ips*; Uruguay, *ipg*; Venezuela, *g1*.

Australia.—New South Wales, *a g1*; Queensland, *g1*; South Australia, *g1*; Victoria, *a g1*; West Australia, *g1*.

Isles of the Seas.—*Atlantic*: Great Britain, *a g*; British Possessions,

* The writer is unable to complete this table to his satisfaction. It may be said that the inhabitants of the whole of the East and the Isles of the Pacific use silver, and that metal is the standard. In the Isles of the Atlantic gold is the standard.

g; Cyclades, N. Sporades, Corfu, Cephalonia, Zante, *iphg*, *Ge*; French Possessions, *g*; Spanish Possessions, *g*; Danish Possessions, *g*; Portuguese Possessions, *g*; Dutch Possessions, *g*; Hayti, *g*.

Mediterranean.—British Possessions, *g*; Spanish Possessions, Italian Possessions, Turkish Possessions.

Indian.—Aden, *g*, *B*; British Possessions, *sc*; Ceylon, *sc*; French Possessions, *s*; Maldives, Mauritius, *sc*; Laccadives, Puli Penang, *s*, *B*; Socotra, *B*; Seychelle Archipelago.

Pacific.—Aleuthian, British Possessions, *s*; Dutch Possessions, *sc*; Spanish Possessions, *a s*; German Possessions, *g*; Japan, *a s*; Japanese Possessions, *s*; French Possessions, *s*; Hawaii, *s*; New Zealand, *g*, *B*; Vancouver, *g*, *B*.

The people of these parts of continents and islands of the world have set before them a definite metal measure of value in a weight of pure gold or pure silver which they desire to act through price as an equivalent in exchange for all the internal interchanges of the country they live in. As their minds become exercised upon the subject they will perceive this, and also the vast advantage to the whole world of the possession of one only substance as an intermediary commodity both as a measure of value and a means of payment.

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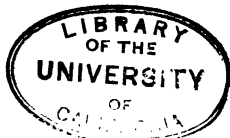
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